SONY

Professional Audio Catalogue 1992

Front cover picture shows a PCM-7010, one of the PCM-7000 series of professional DAT recorders.

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VACUUM TUBE STUDIO CONDENSER MICROPHONES

Vacuum tube studio microphone, selectable directivity

C-800

- Ideal for critical music recording applications in recording studios
- Successor to the world famous Sony C-37A
- Wide dynamic range, with 150dB SPL input capability
- Warm, clear and natural reproduction of wide frequency range sound
- Mechanically selectable directivity, either omni-directional or cardioid
- Large diaphragm capsule

Specifications

Performance	
Capsule type:	Condenser
Tube:	6AU6A
Frequency response:	20Hz to 18,000Hz
Directivity:	Cardiod/Omni-directional
Output impedance at 1kHz:	250 ohms ±20%, balanced
Sensitivity at 1kHz:	−46.0dB/Pa (uni-directional) −48.0dB/Pa (omni-directional)
Signal-to-noise ratio:	More than 72dB (1kHz 1Pa IEC 651, A-weighted)
Inherent noise:	Less than 22dBSPL (IEC 651, A-weighted)
Max. input sound pressure level:	150dBSPL (631 Pa) (1kHz 1% distortion)
Dynamic range:	More than 128dB
General	
Power requirements:	AC 100, 120, 220 or 240V, 50/60Hz
Power consumption:	17W
Dimensions:	
Microphone:	Diameter 57 x 195mm
Power supply unit:	210(W) x 107(H) x 303(D)mm
Weight:	
Microphone:	Approx. 560g
Cradle suspension:	Approx. 210g
Power supply unit:	Approx. 5.3kg
Connentor:	
Microphone:	MIC output; XLR-6-12C
Power supply:	MIC input; XLR-6-31 Audio output; XLR-3-32

Vacuum tube studio microphone, selectable directivity

C-800G

- Designed for the highest possible sound reproduction quality
- Suitable for vocal recording in studios and film post-production houses
- High sensitivity of −33dB/Pa
- Low noise and low distortion due to built-in cooling system
- Large diaphragm capsule
- Electronically selectable directivity, either omni-directional or cardioid

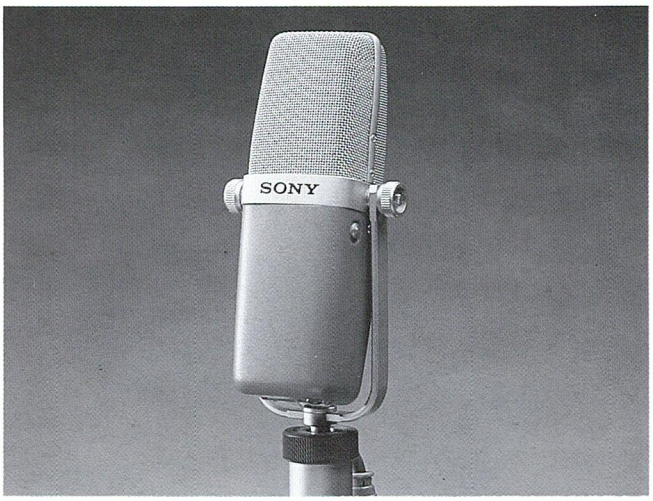
Specifications

Performance	
Capsule type:	Condenser
Tube:	6AU6A
Frequency response:	20Hz to 18,000Hz
Directivity:	Cardioid/Omni-directional
Output impedance at 1kHz:	100 ohms ±20%, balanced
Sensitivity at 1kHz:	−33.0dB/Pa (uni-directional) −36.0dB/Pa (omni-directional)
Signal-to-noise ratio:	More than 74dB (1kHz 1Pa IEC 651, A-weighted)
Inherent noise:	Less than 20dBSPL (IEC 651, A-weighted)
Max. input sound pressure level:	134dBSPL (100 Pa) (1kHz 1% distortion)
Dynamic range:	More than 114dB
General	
Power requirements:	AC 100, 120, 220 or 240V, 50/60Hz
Power consumption:	35W
Dimensions:	
Microphone:	Diameter 57 x 192 x 240mm
Power supply unit:	210(W) x 107(H) x 303(D)mm
Weight:	
Microphone:	Approx. 860g
Cradle suspension:	Approx. 210g
Power supply unit:	Approx. 6.1kg
Connentor:	
Microphone:	MIC output; CNR01 7p
Power supply:	MIC input; CNR01 7s Audio output; XLR-3-32

CONDENSER MICROPHONES

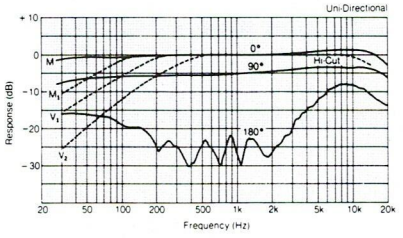
Studio Microphone, selectable directivity

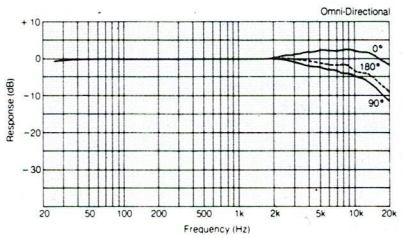
C-38B



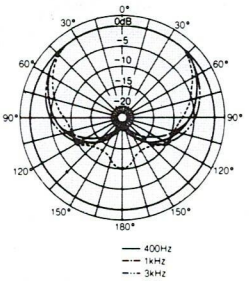
- Selectable directivity
  – cardioid
  – omni-directional
- 140dB SPL, suitable for recording wind instruments
- Two-way powering
  – internal battery
  – phantom supply
- Vibration resistant construction
- Excellent shielding against external magnetic fields

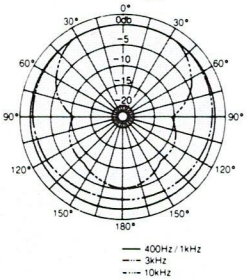
Frequency Response Characteristics





Directivity Characteristics



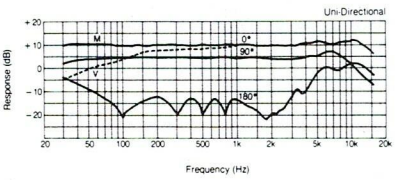


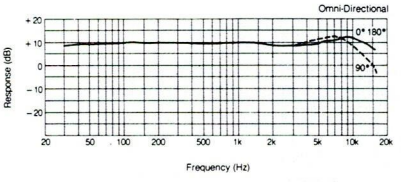
Studio Microphone, selectable directivity

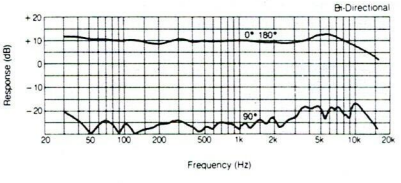
C-48

- Selectable directivity
  – cardioid
  – omni-directional
  – bi-directional
- Two-way powering
  – internal battery
  – phantom supply
- Suitable for vocal and instrumental recording
- 10dB attenuation switch

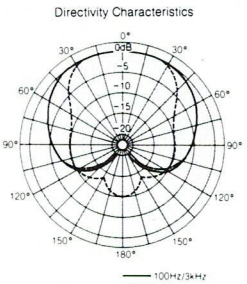
Frequency Response Characteristics

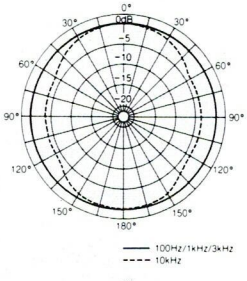


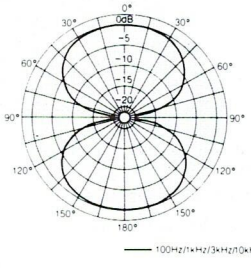




Directivity Characteristics







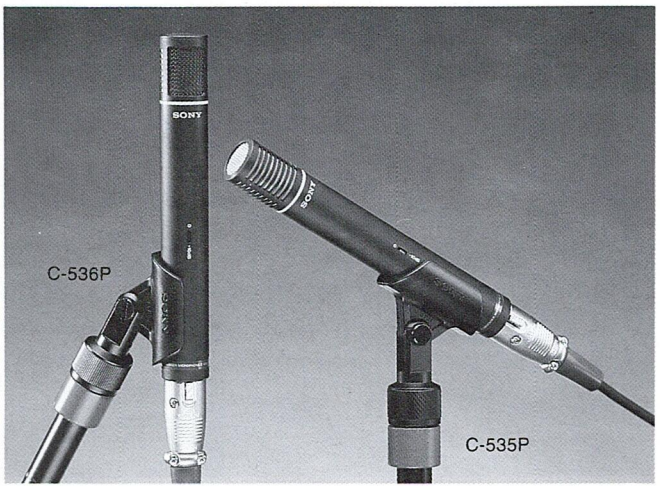
CONDENSER MICROPHONES

1390,- incl. W.

1390,- incl. W.

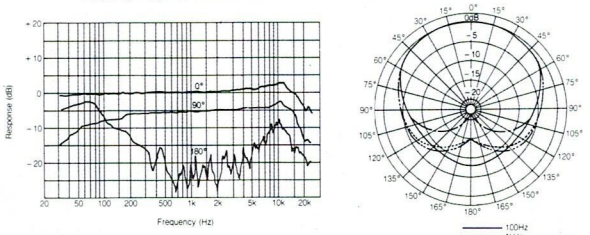
Studio Cardioid Microphones

C-535P/536P

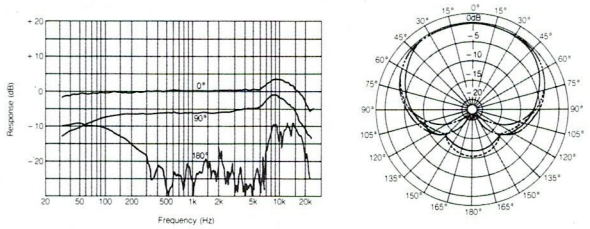


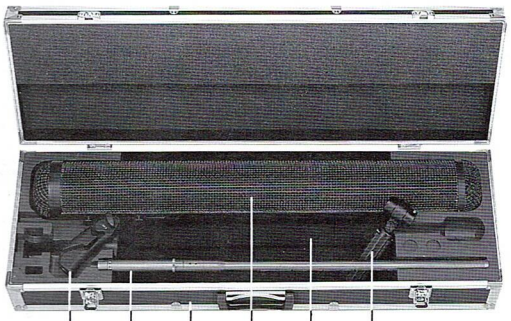
- Alternative cardioid characteristics
  C-535P, maximum sensitivity on microphone axis
  C-536P, maximum sensitivity at right angles to microphone axis
- Designed for multi-microphone recording
- Phantom supply operation

C-535P



C-536P





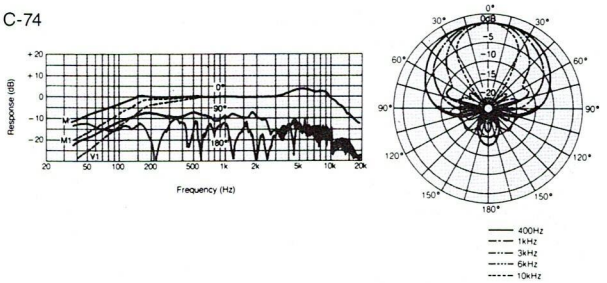
GP-5 Hand Grip (optional)
C-76 Microphone
SC-76 Carrying Case (optional)
GP-4 Hand Grip (optional)
Urethane Wind Screen (supplied)
AD-76 Wind Screen (optional)

Super-Cardioid Microphones

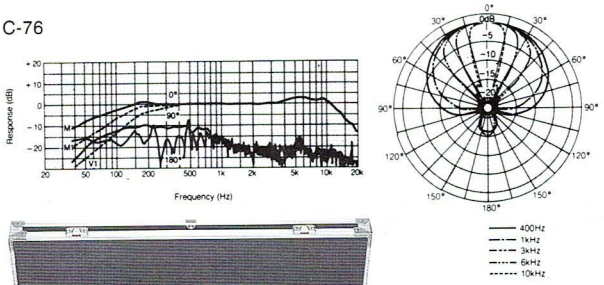
C-74/76

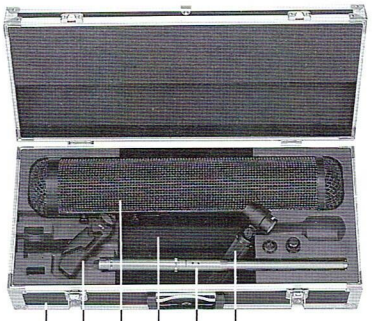
- Super-cardioid directional characteristics, rejecting indirect sound
- Two-way powering
  – internal battery (50 hours continuous operation)
  – phantom supply
- RF condenser design for low noise level

C-74



C-76





GP-4 Hand Grip (optional)
C-74 Microphone
Urethane Wind Screen (supplied)
AD-74 Wind Screen (optional)
GP-5 Hand Grip (optional)
SC-72 Carrying Case (optional)

An optional carrying case (SC-72/76) is available for C-74/76 microphones and their accessories. The SC-72 case is also suitable for ECM-672 and ECM-MS5 microphones and accessories

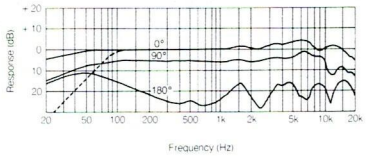
ELECTRET CONDENSER MICROPHONES

Cardioid Microphone

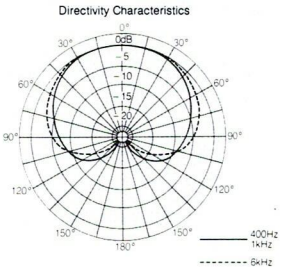
ECM-23FII

- Excellent dynamic range
- Low-cut filter
- Battery operation

Frequency Response Characteristics

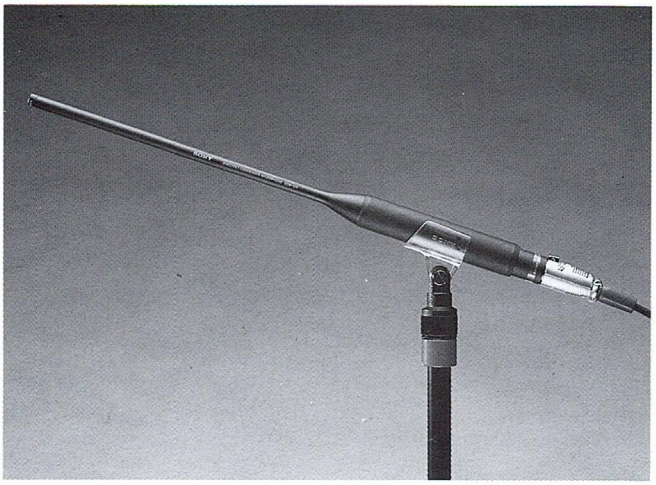


Directivity Characteristics



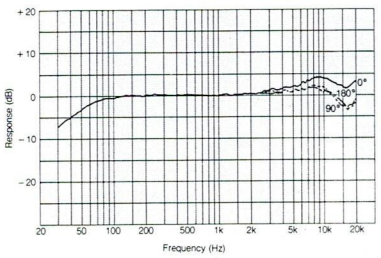
Interview Microphone

ECM-510

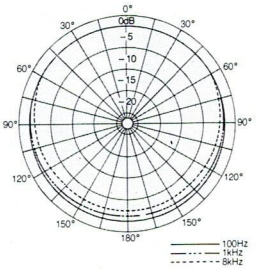


- Omni-directional electret capsule
- Slim hand-held microphone for interview purposes
- Low noise hand grip
- Two-way powering
  – internal AA type battery
  – 12-48V phantom supply

Frequency Response Characteristics



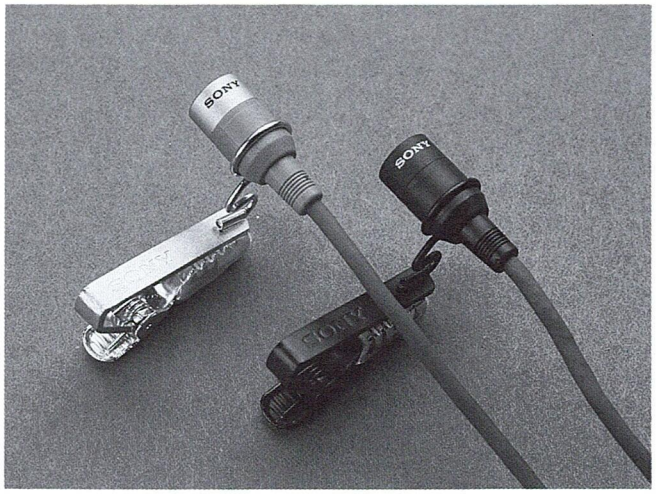
Directivity Characteristics



ELECTRET CONDENSER MICROPHONES

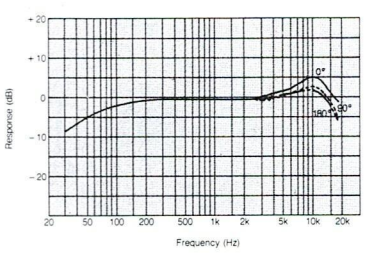
Omni-Directional Microphone

ECM-44 Series

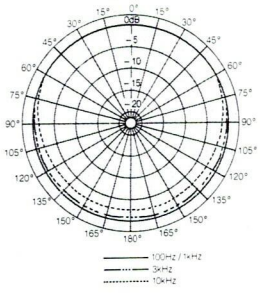


- Miniature microphone head, 2g in weight, 8.5mm diameter
- Excellent cost/performance ratio
- Battery operation
- Six versions available:
  - ECM-44S satin-nickel finish
  - ECM-44B black finish
    Complete with in-line battery unit
  - ECM-44SC satin-nickel finish
  - ECM-44BC black finish
    Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony Wireless Microphone Systems
  - ECM-44SPT satin-nickel finish
  - ECM-44BPT black finish
    Pigtail connection, without battery unit or connector

Frequency Response Characteristics



Directivity Characteristics

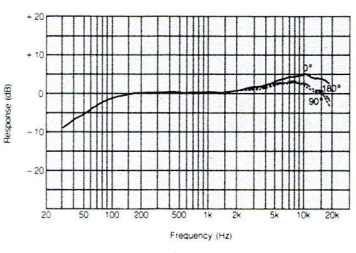


Omni-Directional Microphone

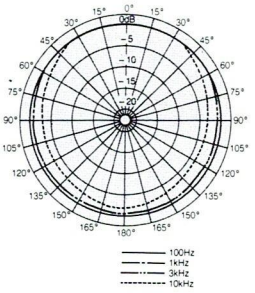
ECM-55 Series

- Frequency response tailored for enhanced presence, improved voice quality in lavalier applications
- Two-way powering
  - internal battery
  - phantom supply
- Six versions available:
  - ECM-55S satin-nickel finish
  - ECM-55B black finish
    Complete with in-line battery unit for two-way powering
  - ECM-55SC satin-nickel finish
  - ECM-55BC black finish
    Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony Wireless Microphone Systems
  - ECM-55SPT satin-nickel finish
  - ECM-55BPT black finish
    Pigtail connection, without battery unit or connector

Frequency Response Characteristics



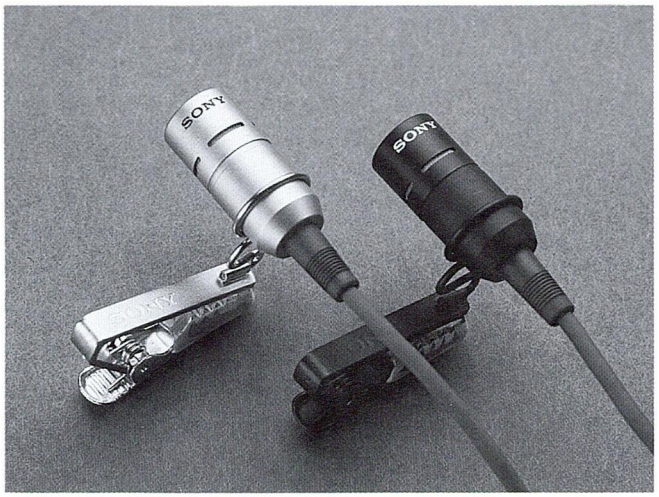
Directivity Characteristics



ELECTRET CONDENSER MICROPHONES

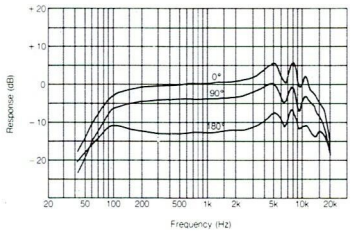
Cardioid Microphone

ECM-66 Series

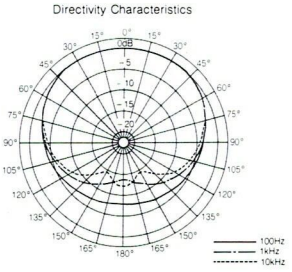


- Designed for instrumental applications
- Two-way powering
  - In-line battery unit
  - Phantom supply
- 130dB SPL
- Six versions available:
  - ECM-66S satin-nickel finish
  - ECM-66B black finish
    Complete with in-line battery unit for two-way powering
  - ECM-66SC satin-nickel finish
  - ECM-66BC black finish
    Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony Wireless Microphone Systems
  - ECM-66SPT satin-nickel finish
  - ECM-66BPT black finish
    Pigtail connection, without battery unit or connector

Frequency Response Characteristics

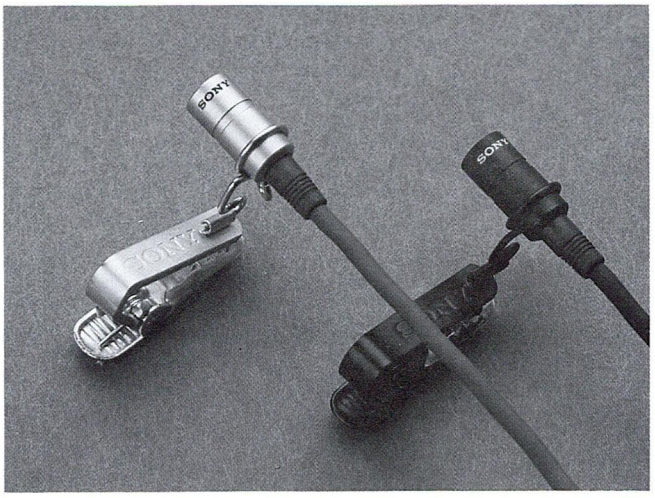


Directivity Characteristics



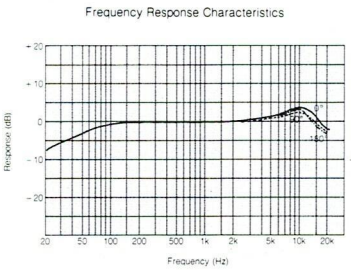
Omni-Directional Microphone

ECM-77 Series

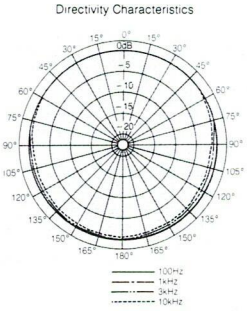


- High performance, frequency response 40-20,000Hz
- Ultra miniature microphone head, only 5.6mm (¼") dia, weighing 1.5g (0.053oz)
- Six versions available:
  - ECM-77S satin-nickel finish
  - ECM-77B black finish
    Complete with in-line battery unit for two-way powering
  - ECM-77SC satin-nickel finish
  - ECM-77BC black finish
    Fitted with 1.2m cable terminating in SMC9-4P connector for use with Sony Wireless Microphone Systems
  - ECM-77SPT satin-nickel finish
  - ECM-77BPT black finish
    Pigtail connection, without battery unit or connector

Frequency Response Characteristics



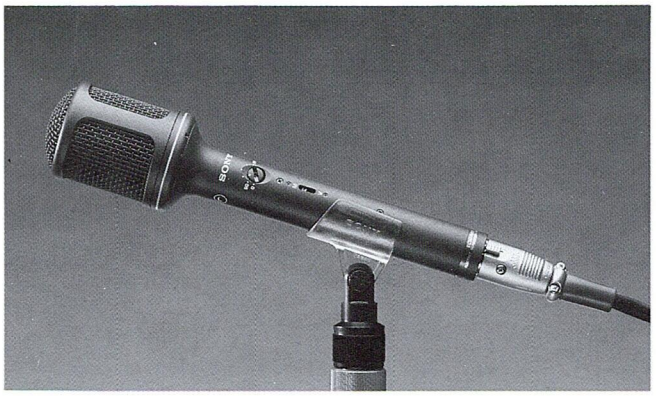
Directivity Characteristics



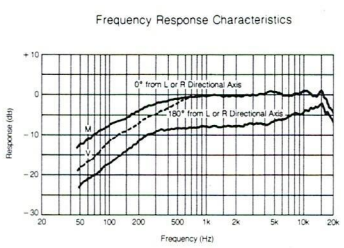
ELECTRET CONDENSER MICROPHONES

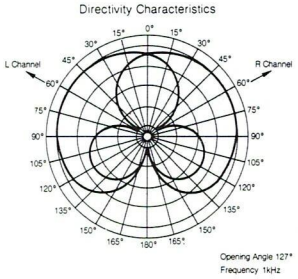
MS Stereo Microphone

ECM-MS5



- Variable stereo image, 0-127° in six steps
- Low-cut filter
- Two-way powering option
  – Phantom supply
  – Battery adaptor





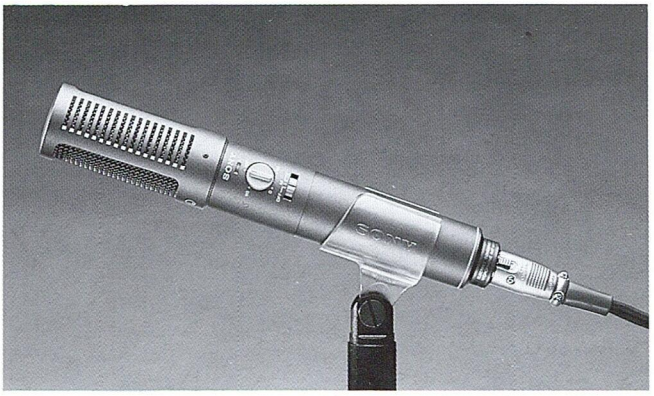
Optional Battery Adaptor

DC-MS5 (optional)

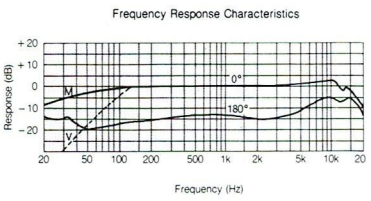
- Provides 12V phantom power (20 hours continuous operation) with AA battery
- Built-in battery indicator

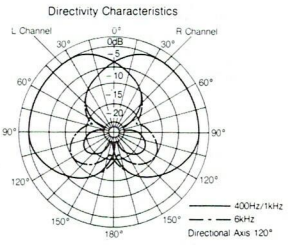
MS Stereo Microphone

ECM-979



- Variable stereo image, 0-150°
- Low-cut filter
- Battery operation

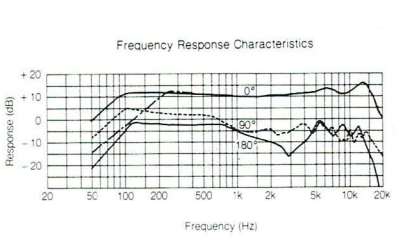


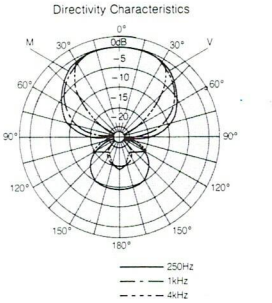


Super-Cardioid Microphone

ECM-672

- Super-cardioid directional characteristics, rejecting indirect sound
- Two-way powering
  – Internal battery (3,000 hours continuous operation)
  – Phantom supply
- Two-position low-cut filter
- Suitable for mounting on Sony Betacam series cameras

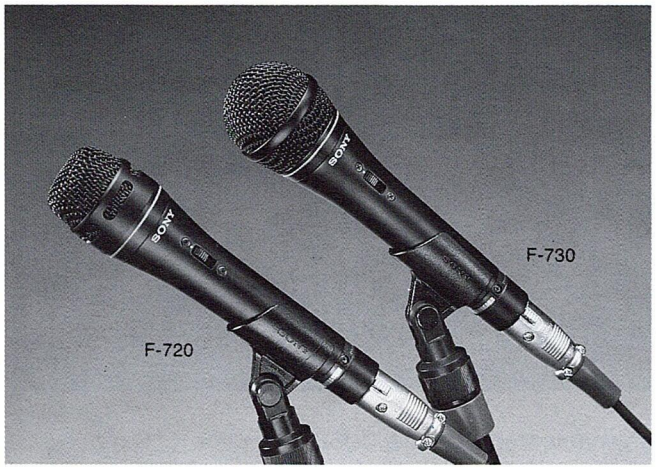




DYNAMIC MICROPHONES

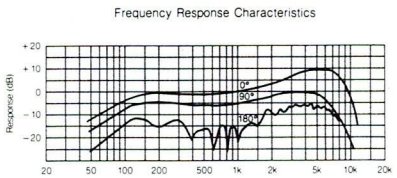
Cardioid Microphones

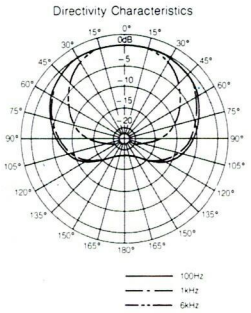
F-720/730



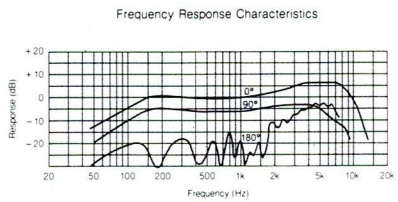
- F-720 for general applications
- F-730 for vocal applications
- Efficient shock mount to protect capsule from vibration
- Built-in on/off switch
- Integral double wind shield to prevent pop/wind noise (F-730)

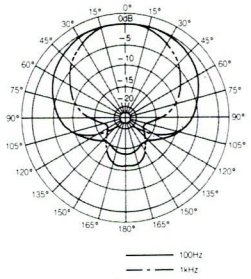
F-720





F-730

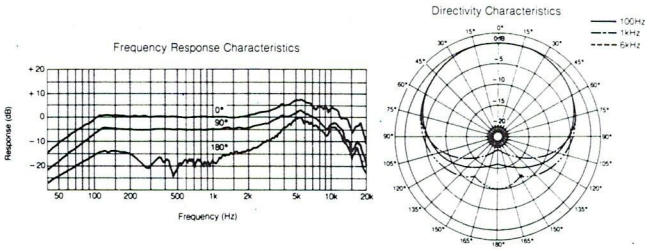




Cardioid Microphone

F-760

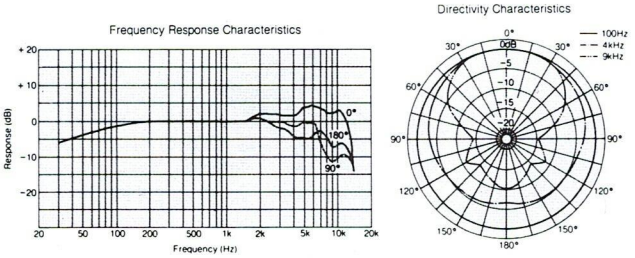
- Extended frequency response
- Reduced pop noise and proximity effect
- Vibration resistant capsule mounting



Omni-Directional Microphone

F-115

- Weather resistant for outdoor applications
- Ideal for reporter use



MICROPHONE SPECIFICATIONS & APPLICATIONS

SPECIFICATIONS

	C535P/536P	C-38B	C-48	C-76	C-74	ECM-77S/B	ECM-66S/B	ECM-55S/B	ECM-44S/B
Capsule type	Condenser	Condenser	Condenser	Condenser	Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser
Directivity	CARDIOID	CARDIOID and OMNI	CARDIOID/BI/ OMNI	CARDIOID	CARDIOID	OMNI	CARDIOID	OMNI	OMNI
Output level at 1kHz (0dB = 1V/1Pa.)	−41.0dB	−48.0dB	−41.0dB	−38.0dB	−38.0dB	−52.0dB	−50.0dB	−52.0dB	−53.0dB
Output impedance at 1kHz (balanced)	200Ω±20%	250Ω±20%	150Ω±20%	250Ω±20%	250Ω±20%	150Ω±20%	100Ω±20%	100Ω±20%	250Ω±20%
Battery type	–	6F22	6F22	7MR9	7MR9	AA (LR6)	AA (LR6)	AA (LR6)	AA (LR6)
Voltage	–	9V	9V	9V	9V	1.5V	1.5V	1.5V	1.5V
Life	–	200h	50h	50h	50h	5,000h	300h	5,000h	5,000h
External powering	DC 48V	DC 24-48V	DC 48V	DC 24-48V	DC 24-48V	DC 24-48V	DC 24-48V	DC 24-48V	–
Dimensions (approx.)	Ø21 x 154mm (Ø27/32 x 6 1/8")	78 x 214 x 46mm (3 1/8 x 8 1/2 x 1 13/16")	54 x 229 x 40mm (2 1/4 x 9 1/8 x 1 5/8")	Ø25 x 678mm (Ø1 x 26 3/4")	Ø25 x 427mm (Ø1 x 16 7/8")	Mic head Ø5.6 x 12.5mm (Ø1/4 x 1/2") Power supply Ø20.0 x 133mm (Ø13/16 x 5 1/4")	Mic head Ø10.6 x 24.2mm (Ø7/16 x 31/32") Power supply Ø20.0 x 163mm (Ø13/16 x 6 1/2")	Mic head Ø10.6 x 21mm (Ø7/16 x 27/32") Power supply Ø20.0 x 133mm (Ø13/16 x 5 1/4")	Mic head Ø8.5 x 14.5mm (Ø11/32 x 19/32") Power supply Ø20.0 x 126mm (Ø13/16 x 5")
XLR-3-12C connector	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weight (approx.)	535P: 138g (4.9oz) 536P: 148g (5.3oz)	650g (1lb 7oz)	550g (1lb 4oz)	420g (14.8oz)	360g (12.7oz)	Mic head 1.5g (0.053oz) Total 121.5g (4.3oz)	Mic head 7g (0.25oz) Total 167g (5.9oz)	Mic head 6.5g (0.23oz) Total 126.5g (4.5oz)	Mic head 2g (0.07oz) Total 121g (4.3oz)
Supplied accessories	Windscreen 1 Mic holder 1 Carrying case 1 Stand adaptor 1	Carrying case 1 Screw driver 1 Stand adaptor 2	Carrying case 1 Stand adaptor 2	Windscreen 1	Windscreen 1	S.H. holder clip 1 S.V. holder clip 1 M. w/screen 1 Mic case 1	S.H. holder clip 1 S.V. holder clip 1 U. w/screen 1 Mic case 1	S.H. holder clip 1 S.V. holder clip 1 M. w/screen 1 Mic case 1	S.H. holder clip 1 U. w/screen 1 Mic case 1

For specifications of C-800/800G, see page 1.1

	ECM-672	ECM-23FII	ECM-33F	ECM-510	ECM-979	ECM-MS5	F-115	F-720	F-730	F-760
Capsule type	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Electret Condenser	Dynamic	Dynamic	Dynamic	Dynamic
Directivity	UNI	UNI	UNI	OMNI	UNI	UNI	OMNI	UNI	UNI	UNI
Output level at 1kHz (0dB = 1V/1Pa.)	−42.0dB	−48.0dB	−54.0dB	−50.0dB	−48.0dB	−37dB	−54.0dB	−57.0dB	−56.0dB	−57.0dB
Output impedance at 1kHz (balanced)	250Ω±20%	200Ω±20%	250Ω±20%	250Ω±20%	480Ω±20%	150Ω±20%	600Ω±20%	500Ω±20%	500Ω±20%	300Ω±20%
Battery type	AA (LR6)	AA (LR6)	7MR9	AA (LR6)	AA (LR6)	–	–	–	–	–
Voltage	1.5V	1.5V	9V	1.5V	–	–	–	–	–	–
Life	3,000h	150h	300h	8,000h	80h	–	–	–	–	–
External powering	DC 48V	–	DC 24-48V	DC 12-48V	–	DC 12-48V	–	–	–	–
Dimensions (approx.)	Ø24 x 304mm (Ø31/32 x 12")	Ø27 x 190mm (Ø1 1/8 x 7 1/2")	Ø27 x 176mm (Ø1 1/8 x 7")	Max. Ø23mm Ø8.5 x 364mm (Ø15/16 Ø11/32 x 14 1/4")	Ø40 x 246mm (Ø1 5/8 x 9 3/4")	Ø47.5 x 212mm (Ø1 7/8 x 8 3/8")	Max. Ø30mm Ø24.6 x 173mm (Ø31/32 x 6 7/8")	Ø37.6 x 166mm (Ø1 1/2 x 6 3/8")	Ø44.4 x 160mm (Ø1 3/4 x 6 5/8")	Ø40 x 162mm (Ø1 5/8 x 6 1/2")
XLR-3-12C connector	Yes	Yes	Yes	Yes	Yes (x2)	Yes (x2)	Yes	Yes	Yes	Yes
Weight (approx.)	230g (8.1oz)	215g (7.6oz)	185g (6.6oz)	125g (4.4oz)	366g (13oz)	215g (7.6oz)	270g (9.5oz)	260g (9.2oz)	250g (8.8oz)	265g (9.4oz)
Supplied accessories	U. w/screen 1	W/screen 1 Mic holder 1 Mic cable 1 Carrying case 1 Stand adaptor 2	Mic holder 1 W/screen 1 Mic cable 1 Mic case 1 Stand adaptor 1	Mic holder 2 W/screen 1	Mic holder 1 W/screen 1 Stand adaptor 1 Mic case 1 Mic cable 1	Mic holder 1 W/screen 1 Mic cable 1 Stand adaptor 2	Mic holder 1 Stand adaptor 2 W/screen 1 Mic case 1	Mic holder 1 Stand adaptor 2	Mic holder 1 Stand adaptor 2	Mic holder 1 Stand adaptor 2 Mic case 1

V: Vertical type M: Metal-mesh type S: Single type H: Horizontal type U: Urethane foam type

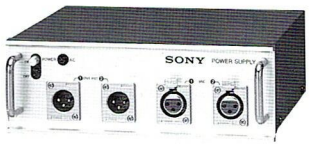
APPLICATIONS

Areas of Application	Model	Examples of Application
Recording Studio	C-800G C-48	High quality vocal
	C-800	Musical instruments with wide dynamic range
Music Recording	C-535P	Musical Instruments: Trumpet, Saxophone, Piano, Violin, Drums (High Hat, Snare, Toms)
	C-536P	Musical Instruments: Violin, Cello, Harp, Guitar, Saxophone, Trumpet, Trombone, Flute, Chorus
	C-48	Strings
	C-38B	Bass Drum, Timpani, Percussion, Electric Bass Guitar
	F-760	Bass Drum, Timpani, Percussion
	ECM-66	Contact for Musical Instruments: Trumpet, Saxophone, Flute
	ECM-77	Contact for Musical Instruments: Violin, Viola
Sound Reinforcement (Stage, Concert Hall, etc.)	C-535P/536P	Drums (Overhead, Snare, Toms), Contrabass
	C-38B	Bass Drum, Electric Bass Guitar
	C-48	Strings
	ECM-66/77	Contact for Musical Instruments (Refer to Music Recording)
	C-74/76 ECM-672 ECM-MS5	Ambience Sound
	F-760	Musical Instruments: Toms, Chorus, Vocal
Video/Audio Production	ECM-23FII	Musical Instruments, Vocal
	F-720	Speech
	F-730	Vocal
	ECM-44	Speech Interview, Contact for Musical Instruments

Areas of Application	Model	Examples of Application
TV/Radio Station	C-48	Speech (Disc Jockey), Musical Instruments (Refer to Music Recording)
	C-38B	Speech, Musical Instruments (Refer to Music Recording)
	C-535P/536P	Musical Instruments (Refer to Music Recording)
	C-74/76 ECM-672 ECM-MS5	Drama, ENG (Mounting on Camera), Ambience Sound for Live Sports
	F-115, ECM-510	ENG, Interview
	ECM-55	Speech, Interview
	ECM-66/77	Musical Instruments (Refer to Music Recording)
	F-760	Speech, Interview Musical Instruments (Refer to Music Recording)
Audio Production House Film Production House	C-74/76	Ambience Sound, Outdoor Location
	ECM-672	Ambience Sound, Outdoor Location, Mounting on Camera
	ECM-MS5 ECM-979	Stereo Ambience Sound
	F-760	Vocal, Chorus
Institutional Use (Assembly Hall, etc.)	F-720	Speech, Conference Recording, Interview, Paging, Public Address
	F-730	Speech (Hand-Held), On-Stage Vocal Recording
	ECM-44	Speech, Interview
	ECM-672	Mounting on Camera
	ECM-23FII	Musical Instruments, Vocal

MICROPHONE ACCESSORIES

AC Power Supply
AC-148F



System: 2-channel external power supply
Power requirements: AC100-120, 220-240V
Output voltage: DC48V
Dimensions: 201(W) x 74(H) x 169(D)mm
Weight: 2kg

Table Stands
A-12

Available threads: U5/16inch
PF1/2 inch

A-25

Available threads: U5/16 inch
PF1/2 inch

A-25N

Available thread: NS5/8 inch

Microphone Stand Pole
SAD-26

Threads: U5/16 inch
PF1/2 inch (male)
PF1/2 inch (female)
Height: 120mm (4 3/4 inch)

Shock-Mount Adaptor
SAD-28

Threads: U5/16 inch
PF1/2 inch (male)
PF1/2 inch (female)

Cradle Suspension
CRS-3P

Available thread:
PF1/2 inch
Supplied stand thread adaptor: NS5/8 inch
Grip: Ø19-24mm
Weight: Approx. 150g

Microphone Cable
EC-10XLR2

Cable length: 10m
Connectors: XLR-3-11C TYPE ⟷ XLR-3-12C TYPE
Colours: black, green, blue, red

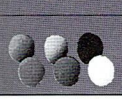
Floor Stand
B-500

Available threads: PF1/2 inch
U5/16 inch
Supplied stand thread adaptor: NS5/8 inch
W3/8 inch
Pole length: 880-1,530mm without stand adaptor
Weight: Approx. 4.6kg

Boom Stand
B-305B

Available threads: PF1/2 inch
U5/16 inch
Supplied stand thread adaptor: NS5/8 inch
W3/8 inch
Boom length: 828mm
Stand height: 980-1,500mm
Weight: Approx. 4.6kg

HOLDER CLIPS AND WIND SCREENS

	Type		Finish	ECM-77S/B	ECM-66S/B	ECM-55S/B	ECM-44S/B	Remarks
Holder Clip	Single (Horizontal)		Satin Nickel	SAD-H77S	SAD-H55S	SAD-H55S	SAD-H44S	10 pcs in each package
			Black	SAD-H77B	SAD-H55B	SAD-H55B	SAD-H44B	
	Double (Horizontal)		Satin Nickel	SAD-W77S	SAD-W55S	SAD-W55S	SAD-W44S	6 pcs in each package
			Black	SAD-W77B	SAD-W55B	SAD-W55B	SAD-W44B	
	Single (Vertical)		Satin Nickel	SAD-V77S	SAD-V55S	SAD-V55S	SAD-V44S	10 pcs in each package
			Black	SAD-V77B	SAD-V55B	SAD-V55B	SAD-V44B	
	Pencil Type		Satin Nickel	SAD-P77S	SAD-P55S	SAD-P55S	SAD-P44S	4 pcs in each package
			Black	SAD-P77B	SAD-P55B	SAD-P55B	SAD-P44B	
	Safety Pin Type		Satin Nickel	SAD-S77	SAD-S55	SAD-S55	SAD-S44	6 pcs in each package
	Tiepin Type		Satin Nickel	SAD-T77	SAD-T55	SAD-T55	SAD-T44	6 pcs in each package
	Necklace Type		Satin Nickel	SAD-N77	SAD-N55	SAD-N55	SAD-N44	1 pc in each package
Power Supply Holder			Satin Nickel	SAD-B100				3 pcs in a package
Wind Screen	Metal		Satin Nickel	AD-R77S	—	AD-R55S	—	6 pcs in each package
			Black	AD-R77B	—	AD-R55B	—	
	Urethane		Gray	—	AD-R66S	—	AD-R44S	12 pcs in each package
			Black	—	AD-R66B	—	AD-R44B	
	Urethane		6 colors	AD-C77	AD-C66	AD-C55	AD-C44	12 pcs in each package (6 colors × 2 pcs)

SECTION 2

UHF WIRELESS MICROPHONE SYSTEM

Transmitting Systems	**PAGE**
WRT-57 Wireless Microphone	2.1
WRT-67 Wireless Microphone	2.1
WRT-28 UHF Transmitter	2.2
WP-27 UHF Power Amplifier	2.2
AN-17 UHF Sleeve Antenna	2.2
AD-27 Power Adaptor	2.2
Receiving Systems	
WRR-28 UHF Portable Tuner	2.3
WRR-37 UHF Diversity Tuner	2.3
PB-36 Portable Base Unit	2.3
AN-27 UHF Shoulder Antenna	2.3
AN-57 UHF Ground Plane Antenna	2.3
WB-57A UHF Antenna Booster	2.3
ACCESSORIES	2.4
SYSTEM APPLICATIONS	2.5
CHANNEL ALLOCATIONS	2.6

UHF WIRELESS MICROPHONE SYSTEM

TRANSMITTING SYSTEMS

UHF Wireless Microphone

WRT-57

- Cardioid, electret capsule
- Outstanding dynamic range and transmitter frequency stability
- Available for operation in either 400 or 900MHz bands
- Power requirements: 1 x 7MR9 battery

UHF Wireless Microphone

WRT-67

- Cardioid, dynamic capsule
- Available for operation in either 400 or 900MHz bands
- Three position audio attenuator; 0dB/-10dB/-25dB
- Power requirements: 1 x AA battery

UHF WIRELESS MICROPHONE SYSTEM

TRANSMITTING SYSTEMS

UHF Transmitter

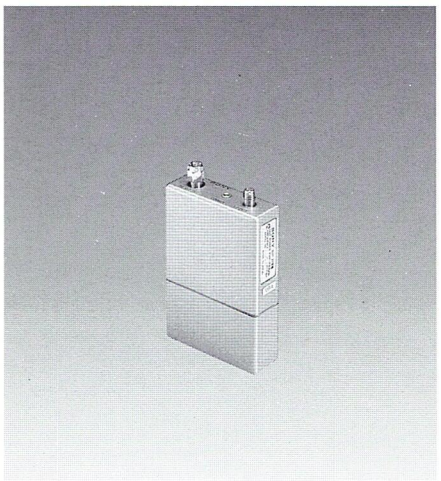
WRT-28

(WRT-28H)

- Ultra compact and lightweight transmitter
- WRT-28L, 400MHz band
- WRT-28H, 900MHz band
- Operates on two AA size alkaline batteries
- Switchable linear/compander mode (compatible with conventional receivers in linear mode)
- Dimensions: 50(W) x 90(H) x 17(D)mm (2 x 3.5 x 0.7")
- Weight: 130g (4.6oz)
- Power requirements: 2 x AA batteries

UHF Power Amplifier

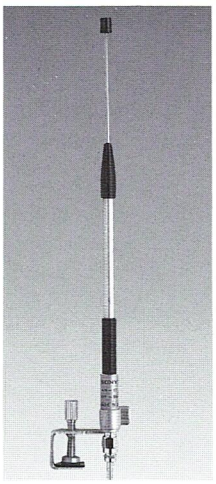
WP-27*



- Compact power amplifier for boosting WRT-28 transmitter
- Operates in 900MHz band only
- Dimensions: 59(W) x 98(H) x 20(D)mm (2.3 x 3.9 x 0.8")
- Weight: 220g (7.8oz)

UHF Sleeve Antenna

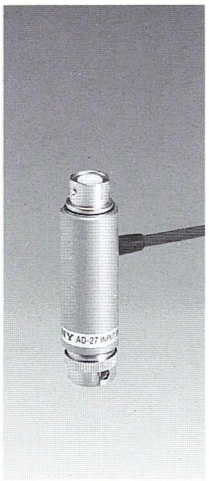
AN-17*



- Slim, lightweight antenna for use with WRT-28 and WP-27
- 10mm dia x 222mm long (0.4 x 8.7")

Power Adaptor

AD-27*



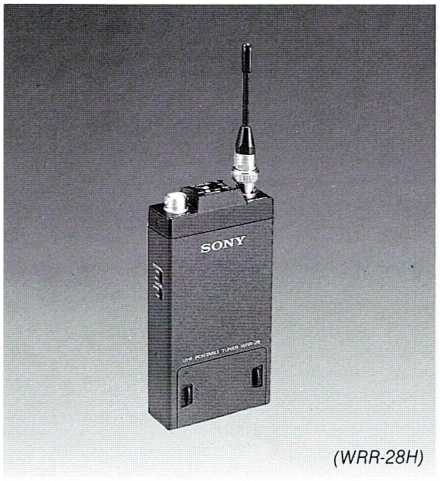
- Supplies power to WRT-28 and WP-27 from an external 12V DC source

*These units combine to form a complete, high power system, operating in the 900MHz band from an external 12V DC power source.

UHF WIRELESS MICROPHONE SYSTEM

RECEIVING SYSTEMS

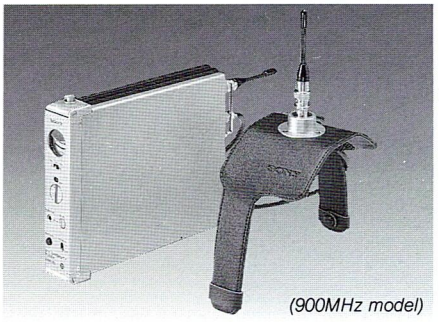
UHF Portable Tuner
WRR-28



(WRR-28H)

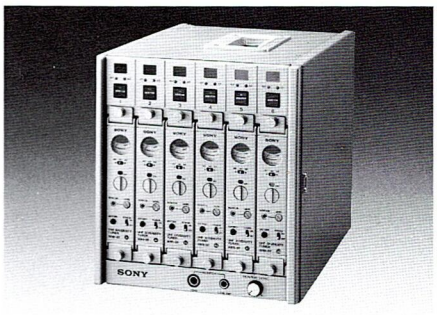
- WRR-28L, 400MHz band
- WRR-28H, 900MHz band
- Switchable linear/compander mode (compatible with conventional receivers in linear mode)
- Includes attachment kit for mounting on Betam camcorders and combos
- Dimensions: 64(W) x 121(H) x 23(D)mm (2.5 x 4.8 x 0.9")
- Weight: 280g (9lb 9oz)
- Power requirements: 2 x AA batteries

UHF Diversity Tuner
WRR-37


(900MHz model)

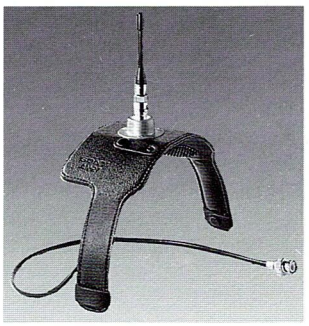
- Dual tuner for diversity reception on 400 or 900 MHz bands
- Two hour battery life
- Whip and shoulder antennas supplied
- Dimensions: 35(W) x 172(H) x 203(D)mm (1.4 x 6.8 x 8")
- Power requirements: 6 x AA batteries

Portable Base Unit
PB-36



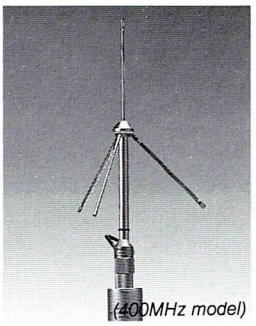
- Holds up to six WRR-37 receivers for multi-channel diversity reception
- Provides power, audio and antenna connections to receivers
- Built-in antenna divider
- Dimensions: 258(W) x 273(H) x 338(D)mm (10.2 x 10.7 x 13.3")
- Weight: 9kg (19lb 14oz)
- Power requirements: 110-120/ 220-240V, 50/60Hz or 12V DC

UHF Shoulder Antenna
AN-27



- Optional shoulder antenna

UHF Ground Plane Antenna
AN-57


(400MHz model)

- Folding elements to save storage space
- Omni-directional for wide service area

UHF Antenna Booster
WB-57A

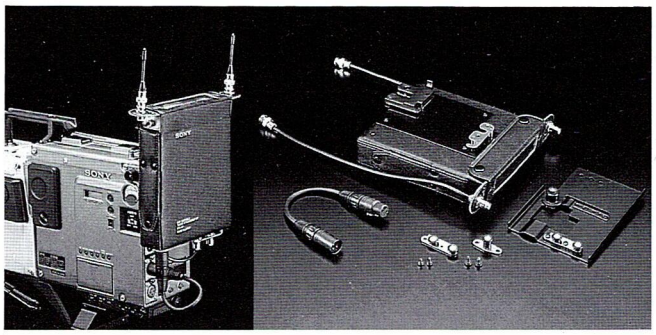
(With AN-57)

- Low noise booster
- 18dB gain (400MHz) 20dB gain (900MHz)

ACCESSORIES

UHF Diversity Tuner Attachment Kit

BTA-37

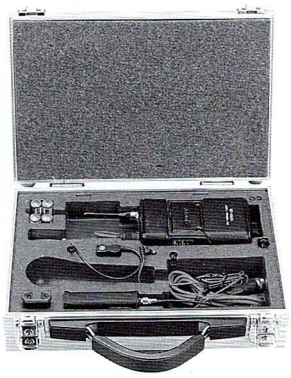


- Leatherette case with accessories to allow a WRR-37 receiver to be mounted on Betacam series camcorders and camera/recorders

CO-AXIAL ANTENNA CABLES

MODEL	Length (m)	Connector (×2)	Cable (50 ohms)	Loss (dB)		Weight (grams)
				500MHz	1000MHz	
WBC-0.6B-P	0.6	BNC-P (UG-88/U)	RG-58A/U			70
WBC-10B-5P	10	BNC-P-5	5D-2V	2.2	3.5	800
WBC-20B-5P	20	BNC-P-5	5D-2V	4.4	7.0	1600
WBC-30B-5P	30	BNC-P-5	5D-2V	6.6	10.5	2400
WBC-50B-5P	50	BNC-P-5	5D-2V	11.0	17.5	4000

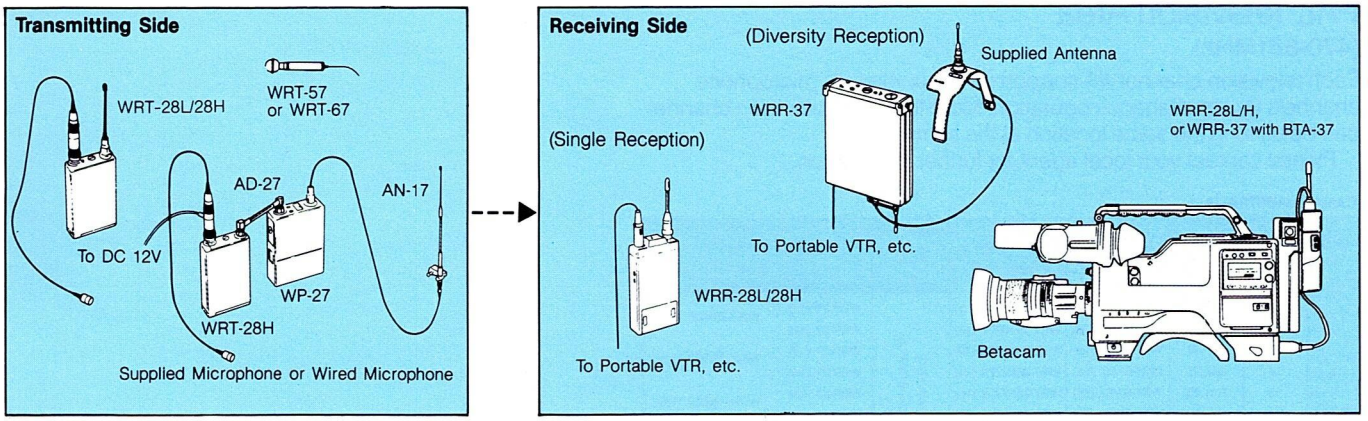
CARRYING CASE



SC-38
Encases WRT-28, WRR-28 and accessories
Dimensions: 312(W) x 237(H) x 96(D)mm
(12⅜ x 9⅜ x 3⅞")
Weight: 1.5kg (3lb 5oz)

UHF WIRELESS MICROPHONE SYSTEM

SYSTEM APPLICATIONS



(1) 1-Channel Portable System

WRT-28	UHF Transmitter	1
or WRT-57/67	UHF Wireless Microphone	1
AN-27	UHF Shoulder Antenna	1
WRR-28	UHF Portable Tuner	1
SC-37	Carrying Case	1

(2) Portable Diversity System

WRT-28	UHF Transmitter	1
or WRT-57/67	UHF Wireless Microphone	1
WRR-37	UHF Diversity Tuner	1
SC-37	Carrying Case	1

(3) 900MHz Band 500mW Transmitting System

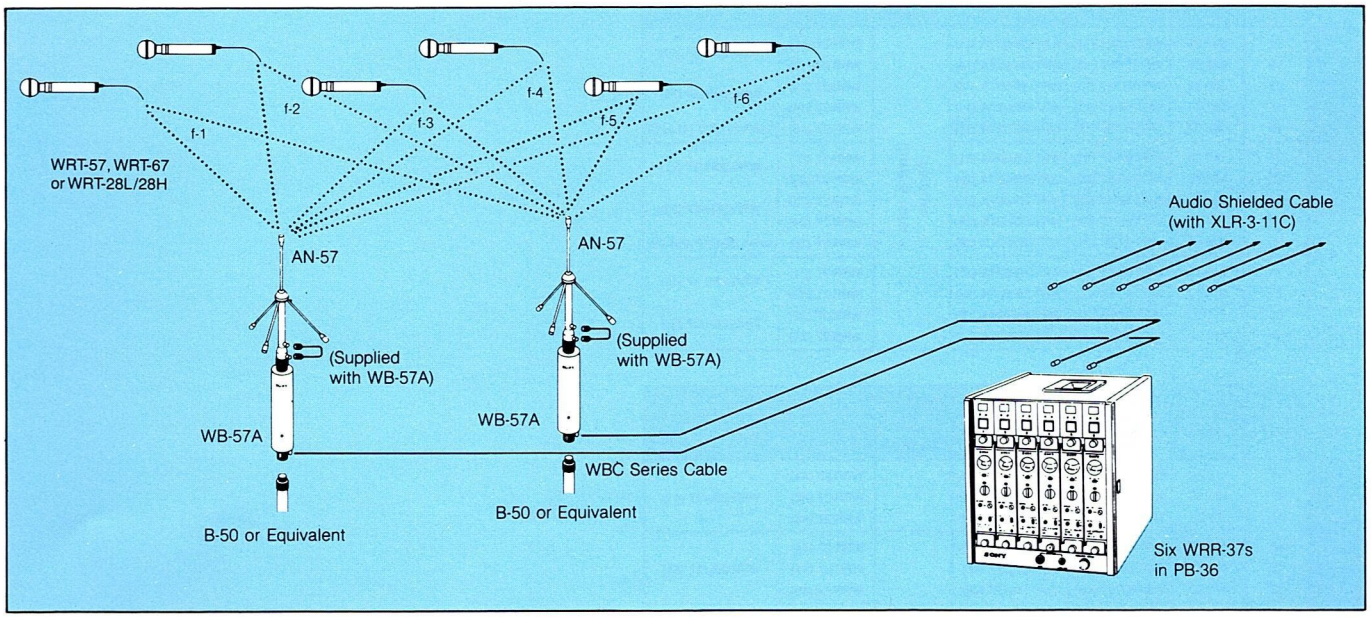
WRT-28	UHF Transmitter	1
WP-27	UHF Power Amplifier	1
AD-27	Power Adaptor	1
AN-17	UHF Sleeve Antenna	1

Note 1 When the WP-27 is used, the WRT-27/28 must not be operated on the built-in battery but with a DC-12V external power supply AD-27.
2 The 500mW transmitting system is available only for operation in the 900MHz band.

(4) Portable Audio/Video System

WRT-28	UHF Transmitter	1
or WRT-57/67	UHF Wireless Microphone	1
WRR-28	UHF Portable Tuner	1
or WRR-37	UHF Diversity Tuner	1
BTA-37	UHF Diversity Tuner Attachment Kit	1
BVW Series Betacam Camcorder		1

Note: A BTA-37 is necessary when attaching a WRR-37 to a Betacam Camcorder.



Multi-Channel Diversity Reception

WRT-57/67	UHF Wireless Microphone	6
or WRT-28	UHF Transmitter	6
WRR-37	UHF Diversity Tuner	6
AN-57	UHF Ground Plane Antenna	2
WB-57A	UHF Antenna Booster	2
PB-36	UHF Portable Base Unit	1
WBC-10B-5P	Coaxial Cable (10m, 50 ohms)	2

Note 1 In multi-channel operation, each transmitter/tuner combination must operate on a frequency different from others used in the same system. Refer to the channel allocation chart on page 2.6.
2 Two to five channel diversity reception can be achieved simply by installing the WRR-37s corresponding to the number of channels in the PB-36.

UHF WIRELESS MICROPHONE SYSTEM

CHANNEL ALLOCATIONS

PAL Television Area

(470-861MHz)

Each television channel will support up to six wireless microphone channels for simultaneous operation. More than one television channel can be used in the same location at the same time.

Please contact your local agent for further information.

CANADA/AUSTRALIA *1

Group No.	Channel No.	Frequency (MHz)	Portable System				
			Microphone	Transmitter	Power Amplifier	Tuner	
1	11	902.75	WRT-57/67 (11)	WRT-28H/27A (11)	WP-27(1) (902—916MHz)	WRR-27 (11)	WRR-28H/37 (11)
	12	904.00	WRT-57/67 (12)	WRT-28H/27A (12)		WRR-27 (12)	
	13	905.00	WRT-57/67 (13)	WRT-28H/27A (13)		WRR-27 (13)	WRR-28H/37 (13)
	14	908.25	WRT-57/67 (14)	WRT-28H/27A (14)		WRR-27 (14)	
	15	909.00	WRT-57/67 (15)	WRT-28H/27A (15)		WRR-27 (15)	WRR-28H/37 (15)
	16	911.00	WRT-57/67 (16)	WRT-28H/27A (16)		WRR-27 (16)	
	17	912.75	WRT-57/67 (17)	WRT-28H/27A (17)		WRR-27 (17)	WRR-28H/37 (17)
	18	915.75	WRT-57/67 (18)	WRT-28H/27A (18)		WRR-27 (18)	
2	21	908.50	WRT-57/67 (21)	WRT-28H/27A (21)	WP-27(2) (908—922MHz)	WRR-27 (21)	WRR-28H/37 (21)
	22	909 75	WRT-57/67 (22)	WRT-28H/27A (22)		WRR-27 (22)	
	23	910.75	WRT-57/67 (23)	WRT-28H/27A (23)		WRR-27 (23)	WRR-28H/37 (23)
	24	914.00	WRT-57/67 (24)	WRT-28H/27A (24)		WRR-27 (24)	
	25	914.75	WRT-57/67 (25)	WRT-28H/27A (25)		WRR-27 (25)	WRR-28H/37 (25)
	26	916.75	WRT-57/67 (26)	WRT-28H/27A (26)		WRR-27 (26)	
	27	918.50	WRT-57/67 (27)	WRT-28H/27A (27)		WRR-27 (27)	WRR-28H/37 (27)
	28	921.50	WRT-57/67 (28)	WRT-28H/27A (28)		WRR-27 (28)	
3	31	914.25	WRT-57/67 (31)	WRT-28H/27A (31)	WP-27(3) (914—928MHz)	WRR-27 (31)	WRR-28H/37 (31)
	32	917.25	WRT-57/67 (32)	WRT-28H/27A (32)		WRR-27 (32)	
	33	919.00	WRT-57/67 (33)	WRT-28H/27A (33)		WRR-27 (33)	WRR-28H/37 (33)
	34	921.00	WRT-57/67 (34)	WRT-28H/27A (34)		WRR-27 (34)	
	35	921.75	WRT-57/67 (35)	WRT-28H/27A (35)		WRR-27 (35)	WRR-28H/37 (35)
	36	925.00	WRT-57/67 (36)	WRT-28H/27A (36)		WRR-27 (36)	
	37	926.00	WRT-57/67 (37)	WRT-28H/27A (37)		WRR-27 (37)	WRR-28H/37 (37)
	38	927.25	WRT-57/67 (38)	WRT-28H/27A (38)		WRR-27 (38)	

USA *1

Group No.	Channel No.	Frequency (MHz)	Portable System				
			Microphone	Transmitter	Power Amplifier	Tuner	
1	11	947.25	WRT-57/67 (11)	WRT-28H/27A (11)	WP-27(5) (938—952MHz)	WRR-27 (11)	WRR-28H/37 (11)
	12	948.25	WRT-57/67 (12)	WRT-28H/27A (12)		WRR-27 (12)	
	13	950.25	WRT-57/67 (13)	WRT-28H/27A (13)		WRR-27 (13)	WRR-28H/37 (13)
	14	951.75	WRT-57/67 (14)	WRT-28H/27A (14)		WRR-27 (14)	
	15	949.00	WRT-57/67 (15)	WRT-28H/27A (15)		WRR-27 (15)	WRR-28H/37 (15&25)
2	21	947.75	WRT-57/67 (21)	WRT-28H/27A (21)		WRR-27 (21)	WRR-28H/37 (21)
	22	949.75	WRT-57/67 (22)	WRT-28H/27A (22)		WRR-27 (22)	
	23	950.75	WRT-57/67 (23)	WRT-28H/27A (23)		WRR-27 (23)	WRR-28H/37 (23)
	24	951.25	WRT-57/67 (24)	WRT-28H/27A (24)		WRR-27 (24)	
	25	948.50	WRT-57/67 (25)	WRT-28H/27A (25)		WRR-27 (25)	WRR-28H/37 (25&15)
3	31	949.25	WRT-57/67 (31)	WRT-28H/27A (31)		WRR-27 (31)	WRR-28H/37 (31)
	32	948.75	WRT-57/67 (32)	WRT-28H/27A (32)		WRR-27 (32)	
	33	950.00	WRT-57/67 (33)	WRT-28H/27A (33)		WRR-27 (33)	WRR-28H/37 (33)
	34	951.50	WRT-57/67 (34)	WRT-28H/27A (34)		WRR-27 (34)	

E *2

Group No.	Channel No.	Frequency (MHz)	Portable System				
			Microphone	Transmitter	Power Amplifier	Tuner	
	41	470.40	WRT-57/67 (41)	WRT-28L/27 (41)		WRR-27 (41)	
	42	471.50	WRT-57/67 (42)	WRT-28L/27 (42)		WRR-27 (42)	WRR-28L/37 (41)
	43	472.25	WRT-57/67 (43)	WRT-28L/27 (43)		WRR-27 (43)	
	44	476.75	WRT-57/67 (44)	WRT-28L/27 (44)		WRR-27 (44)	
	45	477.75	WRT-57/67 (45)	WRT-28L/27 (45)		WRR-27 (45)	WRR-28L/37 (44)
	46	478.90	WRT-57/67 (46)	WRT-28L/27 (46)		WRR-27 (46)	
	47	481.75	WRT-57/67 (47)	WRT-28L/27 (47)		WRR-27 (47)	
	48	482.50	WRT-57/67 (48)	WRT-28L/27 (48)		WRR-27 (48)	WRR-28L/37 (47)
	49	484.25	WRT-57/67 (49)	WRT-28L/27 (49)		WRR-27 (49)	
	50	485.75	WRT-57/67 (50)	WRT-28L/27 (50)		WRR-27 (50)	
	51	487.00	WRT-57/67 (51)	WRT-28L/27 (51)		WRR-27 (51)	WRR-28L/37 (50)
	52	488.00	WRT-57/67 (52)	WRT-28L/27 (52)		WRR-27 (52)	

*1 Any combination of units in the same group can be used simultaneously at the same place. When using units belonging to different groups, they must be at least 100m apart from each other or must be shielded.

*2 Any combination of units and channels can be used at the same place.

SECTION 3

AUDIO CONSOLES

	PAGE
MXP-42 4-Channel Portable Mixer	3.1
MXP-61 12-Channel Mixer	3.2
MXP-210 8-Channel Mixer	3.3
MXP-290 8-Channel Mixer	3.3
MXP-2908 8-Channel Console	3.4
MXP-2916 16-Channel Console	3.4
MXP-2900 Series Configuration	3.4
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MXP-3036/3056 36/56 Channel Consoles	3.6
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MXP-3000 Specifications	3.7
VSP-A600 Video Sound Processor	3.8
VSP-8000 Video Sound Processor	3.9

4 Channel Portable Mixer

MXP-42

- Designed for ENG/EFP use
- ALC (Automatic Level Control) on each channel, compressor/expander action
- +48V phantom power facility
- Transformer coupled inputs and outputs
- Pre-fade, low-pass and high-pass filters on each channel
- Cascade connections to a second MXP-42

Supplied accessories

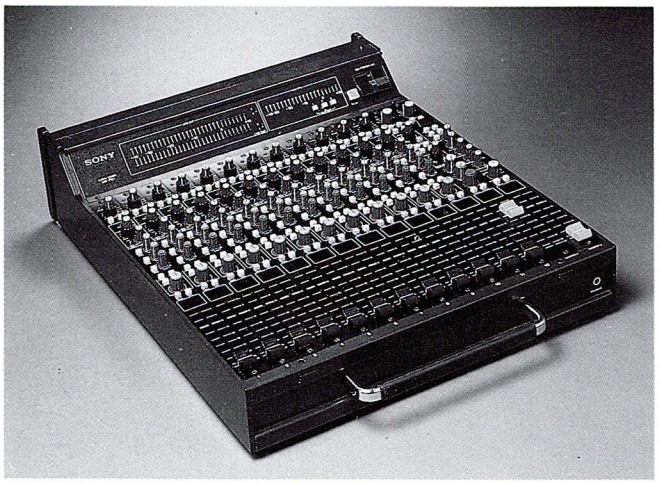
Monitor input connecting cord (2m) (1)
External power supply connecting cord (50cm) (1)
Leather case (1)
Shoulder strap (1)
Spare battery case (1)

Specifications

Inputs:	
MIC/LINE	(4 channels, XLR 3-31 type) −70dBu to −40dBu (−30dBu to 0dBu max) for MIC, balanced −20dBu to 0dBu (+4dBu to +24dBu max) for LINE, balanced
MONITOR	−20dBu to +10dBu (+24dBu max), unbalanced
Outputs:	
MAIN	(2 channels, XLR 3-32 type) +4dBu (+20dBu max), balanced
SUB	(2 channels, XLR 3-32 type) −20dBu (−4dBu max), balanced
PHONES	(2 channels, jack type)
Frequency response:	30Hz to 20kHz ± 1.0dB 10mW into 8 ohms, unbalanced
Harmonic Distortion:	Less than 0.3% at +4dBu, ALC off
Equivalent noise level:	Less than −125dBu (150 ohm termination, 20Hz to 20kHz)
Built-in oscillator:	Frequency 1kHz ± 10% Output level, +4dBu
ALC characteristics:	
ATTACK TIME	Compressor < 50μs
RECOVERY TIME	Compressor/Expander 0.1s/0.5s Expander 0.1s
Power requirements:	DC AV, 6 x C size (LR14) batteries DC 12V, 350mA from external source
Battery life:	Approx 3 hours continuous operation with alkaline batteries
Operating temperature:	0°C to +50°C (32°F to 122°F)
Dimensions:	Approx. 295(W) x 70(H) x 200(D)mm (11⅝ x 2⅞ x 7⅞") including projecting parts and controls
Weight:	Approx. 3.9kg (8lb 10oz), including batteries

12 Channel Mixer

MXP-61



- Equipped with 12 mic/line inputs and 4 line outputs, plus TB output, communicate input and cascade connectors
- Switchable microphone power supply +48V (phantom power) and +12V (A/B feed)
- Built-in 1kHz test tone
- Hi-cut and low-cut filters
- Monitoring through either headphones or external monitor speaker system
- Alternative displays – mechanical VU meters (MX-P61VU) or bargraph peak programme meters (MX-P61PK)
- Self-illuminating MUTE/LINE SELECT switches
- AC/DC operation

Supplied accessory
AC power cord

Optional accessories

MXBK-6101	Input Module
MXBK-6101A	Input Module (with self-illuminating LINE SELECT and MUTE switches)
MXBK-6102	Master 1 Module
MXBK-6102A	Master 1 Module (with self-illuminating LINE SELECT and MUTE switches for sub inputs 1 and 2)
MXBK-6103	Master 2 Module
MXBK-6100	Blank Panel
MXBK-6110	Maintenance Cables (for connecting each module to the mother board when servicing. 4 pcs/set)
ECP-1.5P15	Cascade Cable (1.5m, 15-pin connectors)

Specifications

Inputs:

MIC	(12 channels, Cannon XLR-3-31 type) Reference level: −70dB, −50dB or −30dB Max. level: −40dB, −20dB or 0dB Impedance: 10k ohms, balanced Circuit: Transformerless
LINE	(12 channels, Cannon XLR-3-31 type) Reference level: +4dB Max. level: +24dB Impedance: 10k ohms, balanced Circuit: Transformerless
SUB	(2 channels, Cannon XLR-3-31 type) Reference level: +4dB Max. level: +24dB Impedance: 10k ohms, balanced Circuit: Transformerless
MONITOR	(2 channels, Cannon XLR-3-31 type) Reference level: +4dB Max. level: +24dB Impedance: 10k ohms, balanced Circuit: Transformerless
COMMUNICATE	(1 channel, Cannon XLR-3-31 type) Reference level: +4dB Max. level: +24dB Impedance: 10k ohms, balanced Circuit: Transformerless

Outputs:

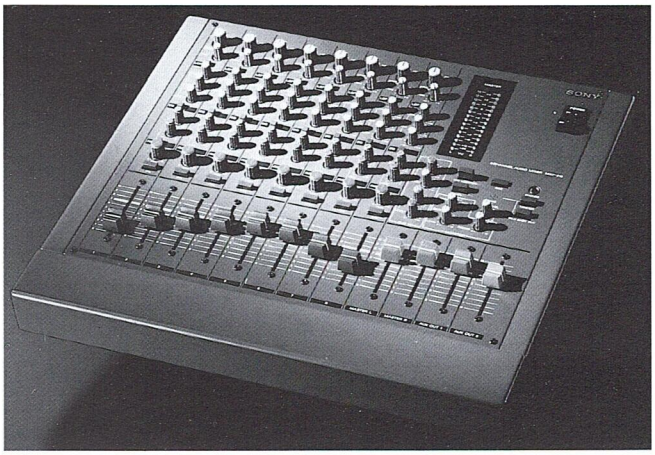
LINE	(4 channels, Cannon XLR-3-32 type) Reference level: +4dB, +6dB or +8dB at 600 ohm load Max. level: +24dB at 600 ohm load Impedance: 150 ohms, balanced Circuit: Transformerless
AUX	(3 channels, Cannon XLR-3-32 type) Reference level: +4dB, +6dB or +8dB at 600 ohm load Max. level: +24dB at 600 ohm load Impedance: 150 ohms, unbalanced Circuit: Transformerless
MONITOR	(2 channels, Cannon XLR-3-32 type) Reference level: 0dB at 10k ohm load Max. level: +20dB at 10k ohm load Impedance: 20 ohms, unbalanced Circuit: Transformerless
PFL	(1 channel, Cannon XLR-3-32 type) Reference level: 0dB at 10k ohm load Max. level: +20dB at 10k ohm load Impedance: 20 ohms, unbalanced Circuit: Transformerless
TB	(1 channel, Cannon XLR-3-32 type) Reference level: 0dB at 10k ohm load Max. level: +20dB at 10k ohm load Impedance: Less than 600 ohms, unbalanced Circuit: Transformerless
PHONE	(2 channels, phone jack) Output: 30mW (max.) at 8 ohm load, unbalanced Circuit: Transformerless

Frequency response:	30-20,000Hz ± 0.5dB
Harmonic distortion:	Less than 0.1% (at 1kHz)
Equivalent input noise:	
MIC	Less than −125dB (150 ohms terminated, 20-20,000Hz)
LINE	Less than −75dB (600 ohms terminated, 20-20,000Hz)
Noise level:	Less than −75dB (Master fader OFF)
Crosstalk:	More than 70dB (channel to channel, at 15kHz)
Max. overall gain:	94dB (+4dB), 96dB (+6dB) or 98dB (+8dB) at 600 ohm load
Equalizer:	
LOW	100Hz ± 12dB, shelving type
MID	500, 1k, 2k, 4kHz ± 12dB
HIGH	10kHz ± 12dB, shelving type
Filters:	Low cut: 100Hz (−3dB), 12dB/octave High cut: 10kHz (−3dB), 12dB/octave
Limiter:	Threshold: 0 to +8dBu (switchable in 2dB steps) Attack time: 20μsec Recovery time: 100 msec Ratio: 3 to 1
Oscillator:	1kHz with less than 3% distortion
Power requirements:	AC100-120V or AC220-240V selectable, 50/60Hz External DC12V
Power consumption:	52W (AC), 50W (DC)
Operating temperature:	−10°C to +50°C (+14°F to +122°F)
Dimensions:	430(W) x 130(H) x 560(D)mm (17 x 5⅛ x 22⅛")
Weight:	18.5kg (40lb 13oz)

(Reference level = 0dBu)

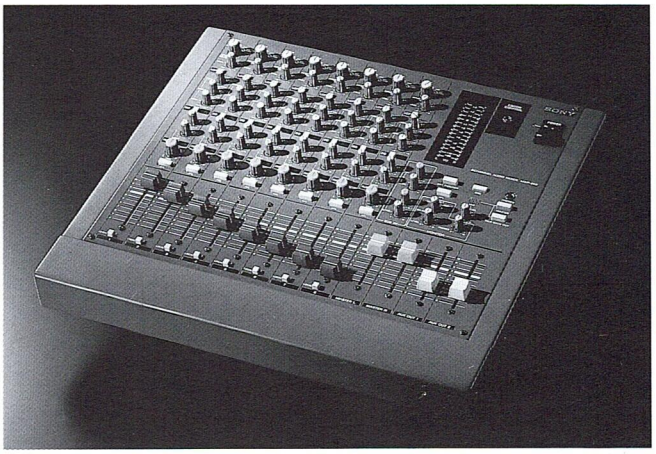
8 Channel Mixer

MXP-210



8 Channel Mixer

MXP-290



The MXP-210 and MXP-290 are both general purpose eight into two audio mixers. The consoles have applications in recording, broadcast, public address and post production.

MXP-210 and MXP-290

- Wide range of inputs (microphone, balanced line, unbalanced line and phono)
- 30dB trim on microphone and balanced line inputs
- 48V phantom power switch on microphone channel
- Three band Eq, two aux sends and PFL (pre fader listen) on each channel
- Separate PFL output and 'PFL to monitor' switch
- Two sub-inputs with level and pan controls
- Two external monitor inputs and switch
- Separate Left and Right Master faders
- Two full size Aux Out faders
- Two, 15 segment VU meters
- 1kHz test tone oscillator
- Talkback microphone, talkback output and 'talk to master' switch
- Headphone amplifier

The MXP-290 has the following additional features

- Video edit controller interface
- Editor control of channel cross fades
- Editor control of preview switching
- Editor control of monitor mutes
- Mono and stereo editor control modes
- Local switch per channel to disable editor control

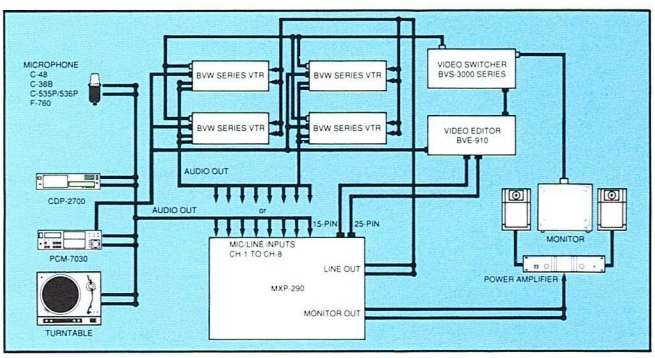
Supplied accessory	AC power cable
Optional accessories	MXBK-201 table kit MXBK-200 rack mount adaptor

Specifications

Inputs:	
MIC/LINE	(8 channels, XLR-3-31 type) −60dB to −30dB (−30dB to 0dB max.) for MIC, −20dB to +10dB (+10dB to +24dB max.) for LINE, more than 6k ohms, balanced, trim 0 to 30dB
LINE	(6 channels, phono) −10dB (+15dB max.), more than 47k ohms, unbalanced
PHONO	(2 channels, phono) −44dB (−14dB max.), more than 47k ohms at 1kHz, unbalanced
SUB	(2 channels, phono) −10dB (+15dB max.), more than 8k ohms, unbalanced
MONITOR	(2 channels, XLR-3-31 type) +4dB (+24dB max.), more than 15k ohms, balanced
Outputs:	
LINE, BALANCED	(2 channels, XLR-3-32 type) +4dB (+24dB max.) at 600 ohm load, less than 150 ohms
LINE, UNBALANCED	(2 channels, phono) −5dB (+15dB max.) at 10k ohm load
AUX	(2 channels, phono) −5dB (+15dB max.) at 10k ohm load
MONITOR	(2 channels, phono) −5dB (+15dB max.) at 10k ohm load
PHONE	(2 channels, stereo phone) 10mW at 32 ohm load
TB	(1 channel, phono) −5dB (+15dB max.) at 10k ohm load
PFL	(1 channel, phono) −5dB (+15dB max.) 10k ohm load
Frequency response:	20-20,000Hz $^{+0.5}_{-1.5}$dB
Harmonic distortion:	Less than 0.3% (+4dB at 1kHz output level)
Equivalent input noise:	
MIC	Less than −123dB (150 ohms terminated, 20-20,000Hz)
LINE	Less than −80dB (input shorted, 20-20,000Hz)
Residual noise:	Less than −85dB (master fader OFF) Less than −70dB (channel fader OFF)
Crosstalk:	More than 70dB (at 10kHz)
Built-in oscillator:	1kHz with less than 3% distortion
Equalizer:	LOW: 100Hz ± 15dB MID: 2.8kHz ± 15dB HIGH: 10kHz ± 15dB
Low-cut filter:	120Hz (−3dB), 12dB/octave
Power requirements:	AC 100-120V (for USA and Canada)/ AC 220-240V (for the other countries), 50/60Hz
Power consumption:	24W
Operating temperature:	5°C to 45°C (41°F to 113°F)
Dimensions:	Approx. 424(W) x 132(H) x 358(D)mm (16¾ x 5¼ x 14⅛")
Weight:	Approx. 7.5kg (16lb 9 oz)

(Reference level = 0dBu)

Audio/Video Editing System with MXP-290

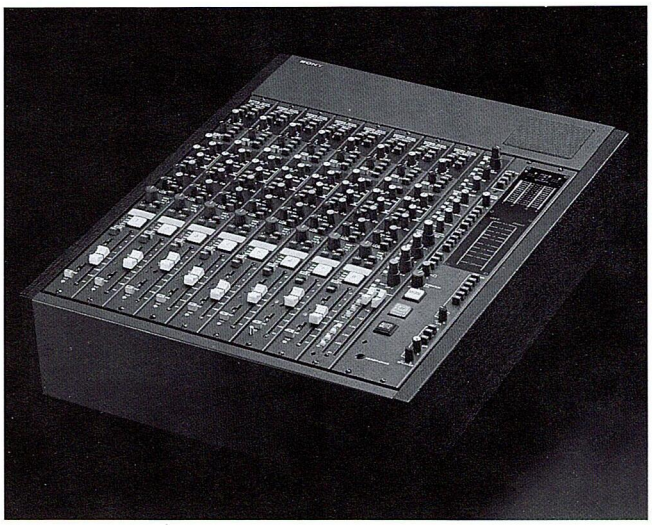


AUDIO CONSOLES

MXP-2900 SERIES

8 Channel Console

MXP-2908



- General purpose mixing consoles particularly suitable for video editing, post production and 'on air' applications
- Four frame sizes:
  10 slot – MXP-2908
  20 slot – MXP-2916
  30 slot – MXP-2926
  40 slot – MXP-2936
- MXP-2908 can be desk or rack mounted for edit suite and mobile applications
- Video editing features
  – Preview switching
  – External monitor switching
  – Channel and group cross fade control
  – Depth of fade 'voice over' control
  – Global and individual channel bypass
  – Four group outputs
- Post production features
  – Three Band EQ on mono, stereo and group modules
  – Four Aux sends
  – Assignable dynamics module
- On air features
  – Control room and studio muting functions
  – On air and rehearsal switching and indicators
  – Talk-back and reverse talk-back
  – Cough switch
  – Fader start
  – Multiple outputs

16/26/36 Channel Console

MXP-2916/2926/2936

Picture shows MXP-2916

MXP-2900 Series Configuration

MODEL	DESCRIPTION
MXBK-2901	Mono input module
MXBK-2902	Group module
MXBK-2903	Dynamics module
MXBK-2904	Stereo input module with EQ
MXBK-2905*	System module with one stereo fader
MXBK-2906**	Monitor module for MXP-2916/2926/2936
MXBK-2908**	Master module for MXP-2916/2926/2936
MXBK-2909	Stereo input module without EQ
MXBK-2916*	Monitor TV module with VU meters
MXBK-2917**	Communications module
MXBK-2925*	System module with twin mono faders
MXBK-2926*	Monitor TV module with PPM meters
MXBK-2927	Nordic/DIN conversion kit for MXBK-2926
MXBK-2928	Canadian conversion kit for MXBK-2926
MXBK-EI22**	BVE interface for MXP-2916/2926/2936
MXBK-EI24*	BVE interface for MXP-2908
MXBK-LI23	Transformer line input
MXBK-LI24	Transformerless line input
MXBK-MI23	Transformer mic input
MXBK-MI24	Transformerless mic input
MXBK-2901E	Mono input module (no mic or line input)
MXBK-2904E	Stereo input module (no line input)
MXBK-2909E	Stereo input module (no eq or line input)
MXP-2908*	10-slot frame
MXP-2916**	20-slot frame
MXP-2926**	30-slot frame
MXP-2936**	40-slot frame

*MXP-2908 must include a MXBK-EI24, either a MXBK-2905 or a MXBK-2925 and either a MXBK-2916 or a MXBK-2926
**MXP-2916/2926/2936 includes a MXBK-E122, a MXBK-2906, a MXBK-2908 and a MXBK-2917
All consoles are supplied with power supplies

MXP-2900 SERIES

Radio Broadc.

MXP-2900 SPECIFICATIONS

Inputs:		
MIC		Reference level: −58dB, variable to −14dB Max. level: +6dB (gain trim minimum) Impedance: 1.2k ohms Circuit: Transformer/transformerless (Opt.)
LINE		Reference level: +4dB Max. level: +24dB ± 1dB Impedance: 10k ohms Circuit: Transformer/transformerless (Opt.)
RETURN		Reference level: +4dB Max. level: +24dB ± 1dB Impedance: 10k ohms Circuit: Transformer
Outputs:		
LINE		Reference level: +4dB Max. level: +24dB ± 1dB Impedance: less than 100 ohms at 1kHz Circuit: Transformer
GROUP		Reference level: +4dB Max. level: +24dB ± 1dB Impedance: less than 100 ohms at 1kHz Circuit: Transformer
STEREO		Reference level: +4dB Max. level: +24dB ± 1dB Impedance: less than 100 ohms at 1kHz Circuit: Transformer
SEND		Reference level: 4dB Max. level: +24dB ± 1dB Impedance: less than 100 ohms at 1kHz Circuit: Transformer
Frequency response:		30-20,000Hz ± 0.5dB 20-20,000Hz ± 1.5dB
Harmonic distortion:		(Channel Line Output) 0.1% (+12dB at 1kHz, THD + Noise)
Equivalent input noise microphone:		−124dB (150 ohms terminated)
Noise level:	MXP-2908 at 2 Mix:	−90dB (Master Fader OFF) −85dB (Channel Fader OFF) Better than −85dB (Fader at reference level all other faders off)
	MXP-2916 at 2 Mix:	−90dB (Master Fader OFF) −84dB (Channel Fader OFF) Better than −84dB (Fader at reference level)
	MXP-2926 at 2 Mix:	−90dB (Master Fader OFF) −83dB (Channel Fader OFF) Better than −83dB (Fader at reference level)
	MXP-2936 at 2 Mix:	−90dB (Master Fader OFF) −82dB (Channel Fader OFF) Better than −82dB (Fader at reference level)
Crosstalk:		−83dB (Channel to channel at 16kHz) −69dB (Bus to bus at 16kHz)
Max. overall gain:		More than 72dB (TMA or EMA Card installed)
Equalizer:		
High frequency		Frequency range: 10kHz (Shelving) Gain range: >12dB cut and boost
Mid frequency		Frequency range: 150Hz to 5kHz Gain range: >12dB cut and boost
Low frequency		Frequency range: 80Hz (Shelving) Gain range: >12dB cut and boost
High Pass Filter		Cutoff frequency (−3dB): 80Hz Slope: 12dB/oct
Compressor:		Threshold: −20dBu to +10dBu Attack time: 1 to 5 msec Recovery time: 25 msec to 1,000 msec Ratio: 1.5:1, to 5:1
Limiter:		Threshold −12dBu to +12dBu Attack time: 100 micro sec Recovery time: 500 msec Ratio: 20:1
Oscillators:	MXBK-2916, MXBK-2926	Fixed frequency: 1kHz Harmonic distortion less than 0.3%
	MXBK-2917	Variable: 150-15,000kHz Harmonic distortion less than 0.3%

Power requirement:		AC90 to 132V/198 to 264V, 50/60Hz
Power consumption:	MXP-2908	200W max.
	MXP-2916/P	280W max. (16 Stereo modules installed)
	MXP-2926/P	350W max. (26 Stereo modules installed)
	MXP-2936/P	450W max. (36 Stereo modules installed)
Dimensions:		(W x D x H):
Consoles	MXP-2908	476.2 x 158.5 x 620.3mm (18.75 x 6.24 x 24.42 inch)
	MXP-2916/P	850.9 x 624.2 x 331.7mm (33.50 x 24.574 x 13.058 inch)
	MXP-2926/P	1257.3 x 624.2 x 331.7mm (49.50 x 24.574 x 13.058 inch)
	MXP-2936/P	1663.7 x 624.2 x 331.7mm (65.50 x 24.574 x 13.058 inch)
Power supply		AC-P8: 482.6 x 375.06 (includes handles and heat sinks) x 88.1mm (19 x 14.766 x 3.469 inch) AC-P2000A: 482.6 x 330.2 (includes handles and rear projects) x 132.6 mm (19 x 13 x 5.22 inch)
Weight:		
Consoles	MXP-2908	Approx. 28.6kg (63lb)
	MXP-2916/P	Approx. 57kg (125lb)
	MXP-2926/P	Approx. 80kg (175lb)
	MXP-2936/P	Approx. 102kg (225lb)
Power supply	AC-P8	Approx. 12.3kg (27lb)
	AC-P2000A	Approx. 20kg (45lb)

(Reference level = 0dBu)

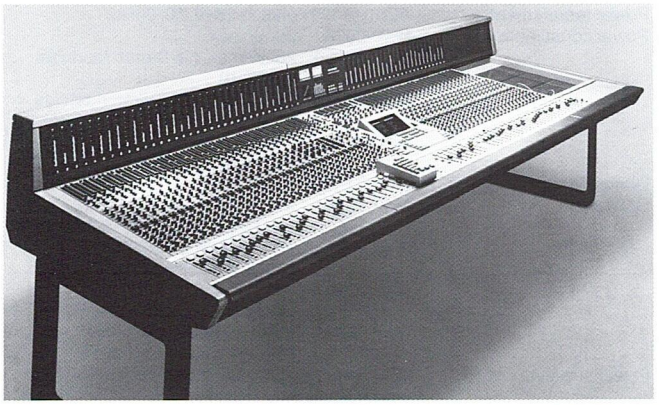
Studio 961...
>95dB
>92 dB 1 ch. V=1

AUDIO CONSOLES

MXP-3000 SERIES

36/56 Channel Consoles

MXP-3036/3056



Picture shows MXP-3056 VF

- Designed for sound recording and mixing applications
- Available in two frame sizes, 36 and 56 inputs
- 24 separate track bus assigns
- Phantom microphone power supply (DC48V)
- Six sends: 1-4 mono, 5-6 stereo pair with pan control, all pre or post fader, with selectable channel or monitor location with level control
- Each I/O module will accept any one of five alternative types of equaliser
- Monitor mic input section offers as standard: electronically balanced mic inputs, optional transformer coupled single/dual mic preamps and dual electronically balanced mic inputs
- Variable high-pass filter (20Hz-320Hz); fixed low-pass. Selectable between channel and monitor independent of EQ location
- Four echo returns with PFL
- Switchable control room outputs to feed up to four sets of monitors
- Phase coherence switch
- Two-stage peak indicators at either mic preamp or EQ output
- Variable control room dim level
- Variable bus control from −14 to +5dBu
- Built-in phase meter
- Patchless audio sub grouping mode allows any of the first 24 I/O modules to be assigned as an audio group master
- Metering: choice of mechanical VU, PPM, or VF meters
- Low distortion internal oscillator
- Modular patch bay

MXP-3000 System Configuration

MODEL	DESCRIPTION
Note All models include: MXBK-3005 MXBK-3006 MXBK-3007	 Master Module x 1 Monitor Module x 1 Communication Module x 1
MXP-3056VF	Mixing Console Frame for up to 56 I/O modules including 56 Vacuum Fluorescent meters for multi-track I/O, master fader, tape machine remote
MXP-3036	Mixing Console Frame for up to 36 I/O modules including 24 VU meters for multi-track I/O, master fader
MXP-3036P	Peak Program Meter (BBC scale) Version of the MXP-3036
MXP-3036VF	Vacuum Fluorescent Metering Version of the MXP-3036
AC-P3000	Power Supply for console,5U. Two required for MXP-3056
AC-P3200	Additional Power Supply Unit (for VF metering), 3U
AC-P3300	Additional Power Supply Unit (for Automation for the MXP-3056/3036/3020), 5U
Module	
MXBK-3000	I/O Blank Panel
MXBK-3001E	I/O Module (No MI, No EQ, transformerless)
MXBK-3002E	Transformer Coupled I/O Module (No MI, No EQ)
MXBK-3004	Stereo Line Input Module
MXP-K3004	Stereo Line Input Module Retrofit Kit
MXBK-3100	Fader Blank Panel
MXBK-3101	Standard Audio Fader Module
MXBK-3104	Stereo Fader Module
MXBK-LI32	Dual Transformerless Line Input Module Mic Preamp
MXBK-MI30	Mic Input Blank Panel
MXBK-MI32	Dual Transformerless Mic Preamp
MXBK-MI33	Single Transformer Coupled Mic Preamp
MXBK-MI34	Dual Transformer Coupled Mic Preamp
EQ	
MXBK-EQ30	EQ Blank Panel
MXBK-EQ31	4 Band EQ Module, Wien Fixed Q Type
MXBK-EQ32	4 Band EQ Module, Wien Switchable Q Type
MXBK-EQ33	4 Band EQ Module, State Variable Type
MXBK-EQ34	4 Band EQ Module, LC Type
MXBK-EQ35	10 Band Graphic EQ Module
VCA	
MXBK-VCA31	DBX VCA
Remote Controller	
MXBK-RC30	Recorder Remote Controller, Retrofit Kit (for the MXP-3036)
MXP-OP30	Recorder Remote Controller, Factory Fitted Option (for the MXP-3036)
Others	
MXP-OP3001	Headphone Amplifier
MXP-OP3002	Optional Communication Module
MXP-OP3003	Master Module Transformers

MXP-3000 SERIES

MXP-3000 System Configuration (continued)

MODEL	DESCRIPTION
Automation	
MXP-OP3010	Fader Automation System for the MXP-3036
MXP-OP3023	Fader Automation System for the MXP-3056VF, with VDU and keyboard
MXP-OP3024	Fader Automation System for the MXP-3056VF, without VDU and keyboard
MXP-OP56M	Panel kit for the MXP-3056VF to be fitted with non-Sony automation systems
MXP-OP56NA	Panel kit for an MXP-3056VF without automation
MXBK-3305	Automation Keyboard (for the MXP-3056/3036)
MXBK-3102	Automated Fader Module (for Automation for the MXP-3036)
MXBK-3103	Automated Fader Module for the MXP-3056
Wild Faders	
MXP-OP3012	Wild Faders (for 1 to 4 ch of the MXP-3036)
MXP-OP3013	Wild Faders (for 5 to 8 ch of the MXP-3036)
MXP-K3012	Wild Faders Retrofit Kit (for 1 to 4 ch of the MXP-3036)
MXP-K3013	Wild Faders Retrofit Kit (for 5 to 8 ch of the MXP-3036)
Dual Mic Patch	
MXP-OP3202	Dual Mic Patch (for the MXP-3036)
Patch Bay Panel	
MXP-K3006	Patch Bay Panel (for the MXP-3036)
Tuchel Connector	
KN-3036	Tuchel Connectors (for the MXP-3036)
KN-3056	Tuchel Connectors (for the MXP-3056)
Parts Kit	
RKA3000-F RKA3001-F RKA3002-F	

Supplied accessories
I/O extender board (1) "T" handle (2)
Cable chimney for the MXP-3036 (1 set)
Cable chimney for the MXP-3056 (3 sets)
Knob tools (1 set)
Meter lamps (4)
Fader removal tool (1)

Specifications
MXP-3036/3036P/3036VF/3056VF
Inputs:
MIC
(Up to 72 channels with dual mic inputs through Tuchel connectors or opt. patch (TT), MXP-OP3102 or MXP-OP3202)
Gain: Variable/Switchable 15 to 35, 30 to 65dB
Max. level: +7dBu
Impedance: 1.2k ohms, balanced
Circuit: Transformer/transformerless (Opt.)

LINE
(Up to 72 channels with dual line inputs through Tuchel connectors or opt. patch (TT), MXP-OP3102 or MXP-OP3202)
Reference level: +4dBu Variable ±10dB
Max. level: +28dBu
Impedance: 10k ohms, balanced
Circuit: Transformerless/transformer (Opt.)

Outputs:
LINE
(Line 24 channels assignable up to 20 additional direct outputs with MXP-OP3102 and MXP-OP3103 Wild Fader Options through Tuchel connectors or patch (TT))
Reference level: +4dBu at 10k ohm load
Max. level: +28dBu at 10k ohm load
Impedance: 120 ohms, balanced
Circuit: Transformerless/transformer (Opt.)

AUX SEND
(1-6), 2 MIX (L, R), MONO (Tuchel connectors or patch (TT))
Reference level: +4dBu at 10k ohm load
Max. level: +28dBu at 10k ohm load
Impedance: 120 ohms, balanced
Circuit: Transformerless/transformer (Opt.)

CONTROL ROOM MONITOR (L, R), STUDIO MONITOR (L, R)
(Tuchel connectors)
Reference level: +4dBu at 10k ohm load
Max. level: +28dBu at 10k ohm load
Impedance: 120 ohms, balanced
Circuit: Transformerless

Frequency response:
20-20,000Hz + 0.5dB

Harmonic distortion:
Less than 0.003% (Line in line out, +20dBu in, rotary fader set at unity gain)
Less than 0.02% (Line in 2-mix out, +4dBu in, VCA fader set at unity gain)

Noise level:
MXP-3036/3036P/3036VF
Less than −93dBu (Line input tracks, unity gain direct assigned)
Less than −85dBu (Line input to 2-mix, unity gain VCA in monitor MXBK-VCA31)

MXP-3056VF
Less than −91dBu (Line input tracks, unity gain direct assigned)
Less than −79dBu (Line input to 2-mix, unity gain VCA in monitor MXBK-VCA31)

Crosstalk:
Less than −80dB (Channel line out signal applied to adjacent channel line inputs, at 15kHz)
Less than −60dB (between channel and 2-mix ACN busses, at 15kHz)

Max. overall gain:
+89dB at 10k ohm load, mic input to line output (individual channel)

Equalizer:
Wien Fixed Q type: MXBK-EQ31
Wien Switchable Q Type: MXBK-32
Variable state: MXBK-EQ-33
LC type: MXBK-EQ34

MXBK-EQ31
Q fixed at 1.5

MXBK-EQ32
Q switchable 0.5/1.5
HIGH: 8kHz −20kHz +15dB, shelving/peaking
MID: 800Hz −8kHz +15dB
MID: 150Hz −2.5kHz +15dB
LOW: 40Hz −250Hz +15dB, shelving/peaking

MXBK-EQ33
Q variable between 0.5 and 6
HIGH: 2kHz −20kHz +15dB shelving/peak
MID: 200Hz −8kHz +15dB
MID: 100Hz −2kHz +15dB
LOW: 20Hz −200Hz +15dB shelving/peak

MXBK-EQ34
Q fixed at 1.7
HIGH: Selectable 2kHz, 4kHz, 8kHz, 16kHz +15dB, shelving/peaking
MID: Selectable 480Hz, 1kHz, 2kHz, 4kHz +15dB
MID: Selectable 120Hz, 240Hz, 480Hz, 1kHz +15dB
LOW: Selectable 30Hz, 60Hz, 120Hz, 240Hz +15dB, shelving/peaking

Filter:
Low cut: Variable 20-320Hz (−3dB), 12dB/octave
High cut: 16kHz (−3dB), 12dB/octave

Oscillator:
Variable 20-20,000Hz with less than 0.1% distortion
Output level: Max +18dBu at 10k ohm load
Transformer Output can drive down to 600 ohms
Also slate oscillator, 18Hz, assignable to tracks

Weight:
MXP-3036: Approx. 420.25kg (925lb)
MXP-3056: Approx. 636kg (1400lb)

Power requirements:
AC 100-120/220-250V

Power consumption:
AC-P3000 900W
AC-P3200 500W
AC-P3300 900W

Dimensions:
Depth: 1135mm (44.7")
Height: 1094mm (43.1")
Width: MXP-3036: 2372mm (93.4")
MXP-3056: 3429mm (135.0")

Video Sound Processor

VSP-A600

- Analogue signal processing
- Six inputs, two switchable to high gain microphone inputs
- Separate Master and Monitor stereo outputs
- 1U high, mounts in 19-inch rack with VSBK-602 option
- Mounts on top of BVE-600 Video Editor
- Editor control from BVE-600 and BVE-910 Video Editors, including crossfades, monitor switching and monitor muting

VSP-A600 with BVE-600 Sony Video Editor

Specifications

Inputs:	
LINE	(4 channels, XLR-3-31 type) +4dBu (+20dBu max.) 10k ohms at 1kHz, balanced
AUX	(2 channels, XLR-3-31 type) +4dBu (+20dBu max.) for LINE, −60dBu (−30dBu max.) for MIC, 6k ohms at 1kHz, balanced
Outputs:	LINE (2 channels, XLR-3-32 type) +4dBu (+20dBu max.) at 600 ohm load, 150 ohms at 1kHz, balanced
Monitor	(2 channels, XLR-3-32 type) −5dBu (+15dBu max.) at 10k ohm load, unbalanced
Frequency Response:	20-20,000Hz +0.5dB/−1.5dB at 1kHz
Harmonic Distortion:	Less than 0.3% (+4dBu, at 1kHz output)
Signal to Noise Ratio:	
MIC	More than 63dB at −60dBu input (150 ohms terminated, 20-20,000Hz)
LINE	More than 75dB at +4dBu input (input shorted, 20-20,000Hz)
Residual Noise:	Less than −85dBu (Master fader OFF) Less than −70dBu (Channel fader OFF)
Crosstalk:	More than 66dB at 10kHz
Built-in Oscillator:	1kHz with less than 3% distortion
Maximum Overall Gain:	84dB at 600 ohm load
Power Requirements:	AC100V-120V (U/C model), 220V-240V (EK model), 50/60Hz
Power Consumption:	15W
Dimensions:	335.9(D) x 424(W) x 53.6(H)mm
Weights:	Approx. 4.9kg
Optional Accessories:	VSBK-602 Rack mount adaptor

Video Sound Processor

VSP-8000

- Video Sound Processor, designed for fully digital post production
- Digital audio signal processing
- 16 inputs, four outputs and two preview busses
- Crossfades between twin programme busses, matches the style of video switchers
- Comprehensive preview control, no external audio switcher required
- Sony serial and ESAM II protocols
- AES/EBU I/O ports, direct connection to Sony D-1, D-2, BVW-85/PCM-85, PCM-3402 and DAT machines
- Automated crossfades
- Four sets of parallel outputs, no digital distribution amplifier required
- 32 inputs. 32 into 16 router and eight sets of parallel outputs with VSBK-8001 option
- Eq and Dynamics processing with VSBK-8000 option
- 48/44.1/44.056kHz sampling frequencies
- 255 Snapshot memories store console settings, snapshots triggerable by editor
- Snapshots saved to floppy disc
- 201 segment peak meters for each output and preview bus

Supplied accessories

EX-223 Extension board (x1)
EX-243 Extension board (x1)
Connection cable between processor and controller, 30m (x1)
Connection cable between controller and meter, 1.5m (x2)
AC power cable (x2)
Fader remover (x1)
3.5" floppy disk (x1)

Specifications

Inputs/Outputs:	
Digital IN	16 channels, AES/EBU format, XLR-3-31 type 32 channels, AES/EBU format, XLR-3-31 type*
Digital OUT	4 channels, AES/EBU format, XLR-3-32 type
Reference video IN	Composite video 1V ± 0.2Vp-p (75 ohms terminated) or Composite sync 0.2V to 5Vp-p (75 ohms terminated), BNC
Reference video OUT	Loop-through output, BNC
WORD SYNC IN	1 channel, TTL level (75 ohms terminated), BNC, 48/44.1/44.056kHz (±50 ppm)
PREVIEW OUT	2 channels, AES/EBU format, XLR-3-32 type
Audio:	
Signal processing	32-bit
Sampling frequency	48kHz, 44.1kHz, 44.056kHz
Frequency response	20Hz-20kHz, +0.5dB/−1.0dB at 1kHz
Built-in oscillator	1kHz
Emphasis	ON/OFF (selectable for each channel)
Controller:	
Input fader	100mm stroke manual fader x16
Crossfader	104mm stroke servo fader x4
Equalizer:**	
Type	Shelving/Peaking
Frequency range	Low: 21Hz-330Hz Low mid: 99Hz-1,600Hz High mid: 330Hz-5.3kHz High: 1kHz-16kHz
Q adjustment	1.4 (fixed)
Gain range	±15dB
Low/High Cut Filters:**	
Cut off frequency	Low: 21Hz-330Hz High: 1kHz-16kHz
Filter slope	12dB/octave
Dynamics Processing:**	
Functions	Limiter, compressor, expander, noise gate
Threshold level	0dBFs to −60dBFs
Ratio	1.1-100:1 (limiter/compressor) 1.5:1 (expander) ∞:1 (noise gate)
Attack time	FAST/NORMAL (selectable)
Recovery time	30 msec.-3 sec.
Gain make up	0-30dB (limiter/compressor)
Range	0-40dB (expander/noise gate)
Indicator:	
Gain reduction meter	12 segment LED**
Level meter	201 segment plasma
Overload indicator	201 segment plasma
General:	
Power requirements	AC 100-120V, 220-240V, 50/60Hz
Power consumption	150W
Dimensions	Processor: Approx (424(W) x 266.5(H) x 550(D)mm (16.7 x 10.5 x 21.7") Controller: Approx. 748(W) x 100(H) x 532(D)mm (29.5 x 3.9 x 21.0") Meter: Approx. 434(W) x 100(H) x 200(D)mm (17.1 x 5.9 x 7.9")
Weight:	Processor: Approx. 27kg (59lb 8oz) Controller: Approx. 23kg (50lb 11oz) Meter: Approx. 4.7kg (10lb 6 oz)

*With the VSBK-8001 optional routing switcher
**With the VSBK-8000 optional equalizer/dynamics

SECTION 4

ANALOGUE RECORDERS

	PAGE
APR-24 Multitrack Analogue Recorder	4.1
APR-5000 Series Analogue Recorders	4.2
APR-5000 Specifications	4.3/4
TC-D5PRO II Portable Stereo Cassette Recorder	4.5
TCM-5000 EV Portable Mono Cassette Recorder	4.5

Multitrack Analogue Recorder

APR-24

- 24 track recorder/reproducer supplied with remote controller
- 16-bit microprocessor controls all transport parameters
- Deep-webbed die-cast deck provides extra strength for stable handling of tape
- Servo-controlled DC capstan motor with ceramic shaft for long life and mechanical precision
- Choice of stored presets for overbias selection, reference fluxibity, tape formulation and equalization standards
- Three alternative alignment presets per tape speed can be stored in non-volatile memory
- Amorphous record and playback heads deliver wide response and long life
- Transformerless, balanced inputs and outputs
- Full-range, bi-colour bargraph display. Zoom mode provides finer resolution of 0.25dB around the 0dB point
- Built-in time code generator/reader
- Synchronisation to LTC, VITC, including SMPTE D/ND, EBU and film
- Chase and lock to external time code, tone and video
- Burst time code output facility
- Serial remote control of slave VTR or another APR-24, for audio sweetening using the internal synchroniser

Supplied accessories	Remote Control Unit Empty reel Blank tape Extension board Preset alignment card pack Spare fuses Tuchel connector kit
Optional accessories	
Stand:	SU-224 a free-standing, adjustable height/angle, floor stand for the remote control unit.
Mounting kit:	Installs the following remote control units in the SU-224 optional stand: MB-24D for dual remote control units MB-24M for the RM-5010 remote control unit for the APR-5000 series MB-24H for the RM-3400 remote control unit for the PCM-3402
Arm rest:	MB-24A
Rack mount kit:	MB-24U for 19" rack mounting of the remote control unit for the APR-24
Interface:	APR-OP24C provides parallel record ready commands to audio consoles
Specifications	
Frequency response:	Record/Reproduce (Scotch 226 tape) 30 ips, AES: 48Hz-25kHz +0.75/−3dB 15 ips, NAB: 25Hz-24kHz +0.75/−3dB Record/Sync 30 ips, AES: 48Hz-23kHz +0.75/−2dB 15 ips, NAB: 25Hz-18kHz +0.75/−2dB
Signal to Noise ratio:	Record/Reproduce, referenced to 250nWb/m (1000nWb/m) Unweighted, 20Hz-20kHz 30 ips, AES: 58dB (70dB) 15 ips, NAB: 54dB (66dB) Weighted (A) 30 ips, AES: 61dB (73dB) 15 ips, NAB: 57dB (69dB)
Distortion:	Harmonic distortion, 250nWB/m, 1kHz fundamental 3rd harmonic: 30 ips, AES <0.15% 15 ips, NAB <0.35%
Bias frequency:	400kHz
Erase frequency:	100kHz
Depth of Erasure:	>75dB (at 1kHz, reference 510nWb/m)
Audio Input/Output:	Tuchel type connectors, 4 balanced input/output per connector
Input/Output impedance:	10 kohm input (1kHz) 120 ohm output (1kHz)
Reference level (normal):	+4dBu input, +4dBu output
Maximum level:	+24dBu input, +24dBu output
Time code Input/Output:	XLR-3-31 type (input), XLR-3-32 type (output) 6-20V (input/output level) 10 kohm (input impedance), 120 ohm (output impedance)
Video Input/Output:	BNC type connectors, 75 ohms
Wow and flutter:	DIN 45507 weighted 30 ips: 0.03% 15 ips: 0.04%
Operating temperature:	5-40°C (41-104°F)
Power requirements:	AC 100/110/120/200/220/240V
Power consumption:	1.2kW maximum
Weight:	181kg (400lb) (stand alone including remote)
Dimensions:	APR-24 790(W) x 1168(H) x 729(D) (31.1 x 46.0 x 28.7")
Remote Control Unit	425(W) x 75(H) x 177(D) (16.7 x 3.0 x 7.0")

Analogue Recorders

APR-5000 SERIES

- 16-bit microprocessor control
- Precision tape counter with both location and go-to displays
- Forward-reverse tape shuttling and wind speed control through Manual Velocity Control (MVC)
- ±50% vari-speed range
- 400kHz bias frequency for low modulation noise, low distortion and reduced "edit squeal"
- Spot erase function sensing
- Microprocessor-managed audio alignments with non-volatile parameter memory
- Instant recall of "personality" presets upon plug-in of alternative head block units
- Quick-change, alignment stable head block units

APR-5003V Audio Recorder
- 12½-inch reel, ¼-inch format two channel NAB standard three speed recorder/reproducer including IEC standard centre track time code capability
- Internal chase synchronisation to VITC or LTC time code
- Serial remote control from Sony editing systems BVE-910 and BVE-9000
- Time code generation locked to a video reference
- Burst time code for synchronisation to external devices

APR-5001 Audio Recorder
- 12½-inch reel, ¼-inch format single channel three speed recorder/reproducer

APR-5002 Audio Recorder
- 12½-inch reel, ¼-inch format two channel NAB standard three speed recorder/reproducer

APR-5002W Audio Recorder
- Amorphous wide profile head version of APR-5002

APR-5002D Audio Recorder (DIN, High Speed)
- DIN head (0.75mm guard band, full track erase) version of APR-5002

APR-5002H Audio Recorder (½-inch High Speed)
- ½-inch stereo format version of APR-5002

Optional accessories

RM-5010	Remote control unit
SU-14	Stand
APR-HB5001	Mono headblock assembly
APR-HB5002	NAB Two-track headblock assembly
APR-HB5002W	Wide profile, Two-track headblock assembly
APR-HB5002D	DIN Two-track headblock assembly
APR-HB5002H	½-inch. Two-track headblock assembly

APR-5000 Specifications

	APR-5001	APR-5002	APR-5002W
Frequency Response	Record/Reproduce 30ips, AES: 57Hz-28kHz, +0.75/−3dB 15ips, NAB: 30Hz-24kHz +0.75/−2dB 7.5ips, NAB: 20Hz-20kHz +0.75/−2dB Record/Sync 30ips, AES: 57Hz-20kHz, +0.75/−3dB 15ips, NAB: 30Hz-16kHz +0.75/−2dB 7.5ips, NAB: 20Hz-8kHz +0.75/−2dB	Record/Reproduce 30ips, AES: 57Hz-28kHz, +0.75/−3dB 15ips, NAB: 30Hz-24kHz +0.75/−2dB 7.5ips, NAB: 30Hz-20kHz +0.75/−2dB Record/Sync 30ips, AES: 57Hz-20kHz, +0.75/−3dB 15ips, NAB: 30Hz-16kHz +0.75/−2dB 7.5ips, NAB: 30Hz-8kHz +0.75/−2dB	Record/Reproduce 30ips, AES: 57Hz-28kHz, +0.75/−3dB 15ips, NAB: 22Hz-24kHz +0.75/−2dB 7.5ips, NAB: 15Hz-22kHz +0.75/−2dB Record/Sync 30ips, AES: 57Hz-20kHz, +0.75/−3dB 15ips, NAB: 25Hz-20kHz +0.75/−2dB 7.5ips, NAB: 18Hz-10kHz +0.75/−2dB
Signal-to-Noise Ratio	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 64dB 15ips, NAB: 62dB 7.5ips, NAB: 61dB Weighted 30ips, AES: 68dB 7.5/15ips, NAB: 64dB	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 59dB 15ips, NAB: 56dB 7.5ips, NAB: 56dB Weighted 30ips, AES: 64dB 7.5/15ips, NAB: 61dB	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 60dB 15ips, NAB: 57dB 7.5ips, NAB: 56dB Weighted 30ips, AES: 65dB 7.5/15ips, IEC: 60dB
Third Harmonic Distortion	(Record/Reproduce, reference to 250nWb/m 1kHz) 30ips, AES < 0.14%/15ips, NAB < 0.31%/7.5ips, NAB < 1.01%		
Bias and Erase Frequency	Bias (400kHz)/Erase (100kHz)		
Depth of Erasure	Measured at reference frequency of 1kHz at a reference fluxivity level of 250nWb/m. More than 76dB for all audio channels		
Amplifier Electronics	Input impedance: 10k ohms balanced/Output impedance: 120 ohms balanced/Output clipping: +24dB		
Tape Speeds	7.5, 15 and 30ips (19.05cm/sec., 38.1cm/sec, 76.2cm/sec)		
Configurations	1 track, ¼"	2 track, NAB ¼"	
Reel Sizes	Available with NAB A: (3, 5, 7"), NAB B: (10½"), NAB: (12½"), DIN: 1,000m (11½")		
Tape Tension	120 grams (nominal)		
Long Term Speed Stability	More than 0.02%		
Wow and Flutter	30ips: < 0.025%; (DIN 45507 Weighted)/15ips: < 0.035% (DIN 45507 Weighted)/7.5ips: < 0.055% (DIN 45507 Weighted)		
Start-up Time	DIN 45507 flutter (with 10½" reels)/30ips: 900msec. 0.30%/15ips: 500msec. 0.15%/7.5ips: 500msec. 0.15%		
First Wind Time	2,400 feet: 110sec./4,800 feet: 170sec.		
Spool Wind Time	2,400 feet: 370sec.		
MVC (Manual Velocity Control)	From full stop to 1.9 metres per second in either direction		
Supplied Accessories	Fuse set x1 set, AC power cord x1, Reel clamper x 2, Head plate cover x1, Extender board x1, User labels x 50 copies, ¼" x 10½" tape x1, ¼" x 10½" empty reel x1		

APR-5000 Specifications Continued

	APR-5002D	APR-5002H	APR-5003V
Frequency Response	Record/Reproduce 30ips, AES: 57Hz-28kHz, +0.75/−3dB 15ips, NAB: 30Hz-24kHz +0.75/−2dB 7.5ips, NAB: 20Hz-20kHz +0.75/−2dB Record/Sync 30ips, AES: 57Hz-20kHz, +0.75/−3dB 15ips, NAB: 30Hz-16kHz +0.75/−2dB 7.5ips, NAB: 20Hz-8kHz +0.75/−2dB	Record/Reproduce 30ips, AES: 40Hz-25kHz +0.75/−3dB 15ips, NAB: 25Hz-24kHz +0.75/−2dB 7.5ips, NAB: 25Hz-22kHz +0.75/−2dB Record/Sync 30ips, AES: 40Hz-25kHz +0.75/−3dB 15ips, NAB: 20Hz-20kHz +0.75/−2dB 7.5ips, NAB: 20Hz-10kHz +0.75/−2dB	Record/Reproduce 30ips, AES: 57Hz-28kHz, +0.75/−3dB 15ips, NAB: 30Hz-24kHz +0.75/−2dB 7.5ips, NAB: 30Hz-20kHz +0.75/−2dB Record/Sync 30ips, AES: 57Hz-20kHz, +0.75/−3dB 15ips, NAB: 30Hz-16kHz +0.75/−2dB 7.5ips, NAB: 30Hz-8kHz +0.75/−2dB
Signal-to-Noise Ratio	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 59dB 15ips, NAB: 56dB 7.5ips, NAB: 56dB Weighted 30ips, AES: 64dB 15ips, NAB: 61dB 7.5ips, IEC: 61dB	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 62dB 15ips, NAB: 59dB 7.5ips, NAB: 59dB Weighted 30ips, AES: 66dB 7.5/15ips, NAB: 64dB	(Record/Reproduce, reference to 250nWb/m) Unweighted, 20Hz-20kHz (Third order filtering) 30ips, AES: 59dB 15ips, NAB: 56dB 7.5ips, NAB: 56dB Weighted 30ips, AES: 64dB 7.5/15ips, NAB: 61dB
Third Harmonic Distortion	(Record/Reproduce, reference to 250nWb/m 1kHz) 30ips, AES < 0.14%/15ips, NAB < 0.31%/7.5ips, NAB < 1.01%		
Bias and Erase Frequency	Bias (400kHz)/Erase (100kHz)		
Depth of Erasure	Measured at reference frequency of 1kHz at a reference fluxivity level of 250nWb/m. More than 74dB for all audio channels	Measured at reference frequency of 1kHz at a reference fluxivity level of 250nWb/m. More than 72dB for all audio channels	Measured at reference frequency of 1kHz at a reference fluxivity level of 250nWb/m. More than 76dB for all audio channels
Amplifier Electronics	Input impedance: 10k ohms balanced/Output impedance: 120 ohms balanced/Output clipping: +24dB		
Tape Speeds	7.5, 15 and 30ips (19.05cm/sec., 38.1cm/sec, 76.2cm/sec)		
Configurations	2 track, DIN ¼"	2 track, NAB ½"	2 track, NAB ¼" IEC Centre Track Time Code
Reel Sizes	Available with NAB A: (3, 5, 7"), NAB B: (10½"), NAB: (12½"), DIN: 1,000m (11½")		
Tape Tension	120 grams (nominal)		
Long Term Speed Stability	More than 0.02%		
Wow and Flutter	30ips: < 0.025%; (DIN 45507 Weighted)/15ips: < 0.035% (DIN 45507 Weighted)/7.5ips: < 0.055% (DIN 45507 Weighted)		
Start-up Time	DIN 45507 flutter (with 10½" reels) 30ips: 900msec. 0.30% 7.5/15ips: 500msec. 0.15%	DIN 45507 flutter (with 10½" reels) 30ips: 1.8sec. 0.15% 7.5/15ips: 1sec. 0.15%	DIN 45507 flutter (with 10½" reels) 30ips: 900msec. 0.30% 7.5/15ips: 500msec. 0.15%
First Wind Time	2,400 feet: 110sec./4,800 feet: 170sec.		
Spool Wind Time	2,400 feet: 370sec.		
MVC (Manual Velocity Control)	From full stop to 1.9 metres per second in either direction		
Supplied Accessories	Fuse set x1 set, AC power cord x1 Reel clamper x2, Head plate cover x1, Extender board x1, User labels x 50 copies, ¼" x 10½" tape x1, ¼" x 10½" empty reel x1	Fuse set x1, AC power cord x1, Reel clamper x2, Head plate cover x1, Extender board x1, User labels x50 copies, ½" x 10½" tape x1, ½" x 10½" empty reel x1	Fuse set x1 set, AC power cord x1, Reel clamper x2, Head plate cover x1, Extender board x1, User labels x50 copies ¼" x 10½" tape x1, ¼" x 10½" empty reel x1

Common specifications

Power requirements:	AC 100-120/220-240V 50/60Hz
Power consumption:	300W max.
Dimensions:	480(W) x 410(H) x 590(D)mm (18.9 x 16.1 x 23.2")
Weight:	approx. 41kg (91lb) approx. 50kg (110lb) with SU-14 stand)

ANALOGUE RECORDERS

Portable Stereo Cassette Recorder

TC-D5 PRO II

- Reliable mechanism including disc-drive capstan-servo tape transport with coreless motor
- Operation on AC with the addition of optional AC adaptor (AC-D468); connects also to car battery with optional car battery cord (DCC-127A)

Supplied accessories	Connecting cord (1). Carrying case and shoulder strap (1 set), Belt (1 set)
Specifications	
Recording system:	4-track 2-channel stereo
Frequency response (Dolby NR OFF):	FeCr cassette (TAPE SELECT: TYPE III) 40-16,000Hz ±3dB (NAB) 40-16,000Hz (DIN)
Total harmonic distortion:	0.9% (CrO_2 cassette)
Wow and flutter:	0.06% (WRMS), ±0.17% (DIN)
Inputs:	
MIC	(Cannon XLR-3-31 type x2) 0.28mV, balanced, for low-impedance microphone
Outputs:	
LINE	(Phono jack x2) Output level 0.44V, less than 4.7k ohms
HEADPHONES	(Stereo phone jack x1) 20mW + 20mW at 10% harmonic distortion, load impedance 8 ohms
Built-in speaker:	Approx. 5cm (2") dia., 200mW (at 10% harmonic distortion, DC operation)
Power requirements:	DC3V two "D" size (R20) batteries DC12V car battery with optional DCC-127A AC110, 120, 220, 240V, 50/60Hz with optional AC-D468
Battery life:	Approx. 4.5 hours with "D" size (LR20) alkaline batteries; approx. 2.5 hours with "D" size (R20) dry batteries
Dimensions:	242(W) x 48(H) x 168(D)mm max. (9⅝ x 1 15/16 x 6⅝")
Weight:	Approx. 1.7kg (3lb 12oz) with batteries

Portable Mono Cassette Recorder

TCM-5000EV

- Built-in tape counter, monitor loudspeaker and condenser microphone
- End of tape alarm and auto shut-off
- Automatic recording level control
- Variable speed playback (−20 to +40%)
- Independent monitor playback head
- Voice operated start facility
- Remote control start/stop facility

Supplied accessories	Connecting cord, carrying case and shoulder strap.
Specifications	
Recording system:	2-track 1-channel
Frequency response:	90Hz-9kHz
Inputs:	
MIC	(Mini-jack) 0.2mV, low impedance
MIXING MIC	(Mini-jack) 0.44mV, low impedance
LINE	(Mini-jack) 0.66V
Built-in speaker:	9.2cm dia., 700mW (at 10% distortion)
Power requirements:	DC6V four "C" size (IEC R14) batteries DC12V car battery with optional DCC-127A AC100, 110, 220, 240 with optional AC-122
Battery life:	Approx. 20 hours with Sony alkaline batteries
Dimensions:	271(W) x 59(H) x 143(D) mm (10¾ x 2⅜ x 6⅛ inches) including projecting parts and controls
Weight:	Approx. 1.45kg (3lb 4oz)

SECTION 5

DIGITAL AUDIO RECORDERS

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DIGITAL RECORDERS

Professional DAT Recorder

PCM-2000

- Compact and lightweight unit weighing approx. 4.2kg (9lb 4oz) with one NP-1B battery
- Recording at any one of 4 sampling frequencies: 48kHz, 44.1kHz, 44.056kHz, or 32kHz. (Analogue inputs are disabled when recording at 32kHz)
- SMPTE/EBU time code recording on longitudinal track
- AES/EBU digital I/O for interfacing with other digital equipment
- Two times oversampling A/D converter and digital filter
- Flexible analogue inputs – +4dBu line or −70dBu/−50dBu/−30dBu mic sources
- Switchable microphone power supply – DC48V or DC12V (12P/12T)

Supplied accessories
Shoulder strap
Rain cover

Optional accessories
BC-1WB Battery charger for NP-1B
AC-F200 AC power adaptor
BVG-200 Time code reader/generator
NP-1B rechargeable battery pack

Specifications

Recording system:	Rotary Head DAT recording
Recording time:	Max. 120 minutes (with Sony DT-120)
Tape speed:	8.15mm/sec
Rewind/fast forward time:	Approx. 60 sec (with Sony DT-120)
Tape:	Metal particle
Sampling frequencies:	48kHz, 44.1kHz, 44.056kHz and 32kHz*
Quantization:	16-bit linear
Dynamic range:	More than 87dB
Frequency response:	20 to 22,000Hz ± 0.5dB (fs = 48kHz)
Total harmonic distortion:	Less than 0.07% (1kHz, −10dBu, 20kHz lowpass filter ON)
Wow and flutter:	Limited only by crystal oscillator accuracy
Input/outputs:	
ANALOGUE INPUTS	MIC/LINE (XLR-3-31 type x2) LINE: Ref. level −10dBu, max +24dBu 47k ohms, balanced, transformerless MIC: −70/ −50/ −30dB with 40/20/0dB attenuation, 10k ohms, balanced
ANALOGUE OUTPUTS	LINE (phono jack x2) 8dBu (full bit) HEADPHONES (stereo phone jack x1) 15mW + 15mW, 32 ohm load
DIGITAL I/O	AES/EBU IN: XLR-3-31 type (x1), 110 ohms OUT: XLR-3-32 type (x1), 10 ohms
WORD SYNC IN	TTL compatible, 75 ohms, unbalanced, BNC (x1)
TIME CODE IN	0.5 to 5Vp-p, 10k ohms, unbalanced, BNC (x1)
TIME CODE OUT	3 +0.5Vp-p, 10k ohms, unbalanced, BNC (x1)
Power requirements:	DC 12V NP-1B rechargeable battery pack AC operation with the addition of AC-F200 or AC-500/500CE AC power adaptor
Operating temperature:	0°C to +40°C (32°F to 104°F)
Battery life:	Approx. 1.5 hours with NP-1B
Dimensions:	Approx. 212(W) x 77(H) x 263(D)mm (8⅜ x 3 x 10⅜")
Weight:	Approx. 4.2kg (9lb 4oz) with battery

*Digital input and playback only

DIGITAL RECORDERS

Professional DAT Recorder

PCM-2300

- 2-channel DAT recorder
- Start/skip/end ID recording and renumbering
- A-Time recording
- 32/44.1/48kHz sampling
- Balanced XLR analogue I/O

Supplied accessories
RM-D2300 wireless/wired remote control unit
19-inch rack mounting adaptor

Specifications

Tape speed: Standard: 8.15mm/sec
Long-play mode: 4.075mm/sec
Recording time: Standard: 120 minutes (with Sony DT-120R)
Long-play: 240 minutes (with Sony DT-120R)
FF and REW time: Approx. 60 seconds (with Sony DT-120R)
DIGITAL AUDIO SIGNAL
Number of channels: Two (stereo)
Sampling frequencies:

Sampling Frequency		48kHz 16-bit linear	44.1kHz 16-bit linear	32kHz 16-bit linear	32kHz* 12-bit non-linear
REC	Analogue IN	Yes	Yes	No	Yes
	Digital IN	Yes	Yes	Yes	Yes
Playback		Yes	Yes	Yes	Yes

*Long play mode

Quantization: Standard: 16-bit linear
Long-play mode: 12-bit non-linear
Error correction: Double-encoded Reed Solomon Code
Signal-to-noise ratio: More than 86dB (A-weighted)
Frequency response: Standard, 20Hz to 20kHz ± 0.5dB
Long-play mode, 20Hz to 14.5kHz ± 0.5dB
Total harmonic distortion: Standard, less than 0.07% (1kHz, 0dBu)
Long-play mode, less than 0.3% (1kHz, 0dBu)
Wow and flutter: Below measurable limit
INPUTS/OUTPUTS
Analogue inputs: +4dBu (+24dBu max), 10k ohms, balanced, XLR-3-31 type (x2)
Analogue outputs: +4dBu (+24dBu max.), less than 50 ohms, balanced, XLR-3-32 type (x2)
Digital I/O: Unbalanced (IEC-958 type I/II), Phono (x2)
Parallel remote: TTL compatible, D-sub 37-pin
Headphone outputs: 20mW at 32 ohms, stereo phone
GENERAL
Power requirements: AC 220 to 240V, 50/60Hz
Power consumption: Approx. 40W
Dimensions: Approx. 430(W) x 125(H) x 350(D)mm
Weight: Approx. 11kg

Professional DAT Recorder

PCM-2700

- 2-channel DAT recorder
- Four heads, four direct drive motors
- Confidence monitoring
- Subcode management system (Start ID, Skip ID, End ID)
- Manual start ID with rehearse function
- Direct access by 10 numeric keys
- Alternative time displays (P-Time, A-Time, Remaining Time)
- 32/44.1/48kHz analogue recording function
- A-Time locate function
- Parallel remote interface (37-pin D-type)

Supplied accessories
RM-D2700 wireless remote controller
19-inch rack mounting adaptor

Optional accessory
RM-D7100 parallel remote controller

Specifications

Tape speed: Standard: 8.15mm/sec
Long-play mode: 4.075mm/sec
Recording time: Standard: 120 minutes (with Sony DT-120R)
Long-play: 240 minutes (with Sony DT-120R)
FF and REW time: Approx. 60 seconds (with Sony DT-120R)
DIGITAL AUDIO SIGNAL
Number of channels: Two (stereo)
Sampling frequencies:

Sampling Frequency		48kHz 16-bit linear	44.1kHz 16-bit linear	32kHz 16-bit linear	32kHz* 12-bit non-linear
REC	Analogue IN	Yes	Yes	No	Yes
	Digital IN	Yes	Yes	Yes	Yes
Playback		Yes	Yes	Yes	Yes

*Long play mode

Quantization: Standard: 16-bit linear
Long-play mode: 12-bit non-linear
Error correction: Double-encoded Reed Solomon Code
Signal-to-noise ratio: More than 90dB (A-weighted)
Frequency response: Standard, 20Hz to 20kHz ± 0.5dB
Long-play mode, 20Hz to 14.5kHz ± 0.5dB
Total harmonic distortion: Standard, less than 0.05% (1kHz, 0dBu)
Long-play mode, less than 0.3% (1kHz, 0dBu)
Wow and flutter: Below measurable limit
INPUTS/OUTPUTS
Analogue inputs: +4dBu (+24dBu max), 10k ohms, balanced, XLR-3-31 type (x2)
Analogue outputs: +4dBu (+24dBu max.), less than 50 ohms, balanced, XLR-3-32 type (x2)
Digital I/O: Unbalanced (IEC-958 type I/II), Phono (x2)
Parallel remote: TTL compatible, D-sub 37-pin
Headphone outputs: 20mW at 32 ohms, stereo phone
GENERAL
Power requirements: AC 220 to 240V, 50/60Hz
Power consumption: Approx. 40W
Dimensions: Approx. 430(W) x 130(H) x 350(D)mm
Weight: Approx. 11kg

PROFESSIONAL DAT RECORDERS FOR BROADCAST AND PRODUCTION – PCM-7000 SERIES

The Sony professional DAT line-up consists of three recorders and a full range of options for each recorder.
The user has the flexibility of choosing the best combination for his particular needs, avoiding unnecessary investment.

PCM-7010

The PCM-7010 is a cost-effective professional DAT recorder, particularly well suited for simple on-air applications.

- Parallel and fader start
- Balanced analogue and digital interfaces
- Instant start from RAM
- Time code reader/generator option
- Playback of audio data sampled at 48, 44.1 and 32kHz
- Seamless punch in/punch out recording

PCM-7030

The PCM-7030 is optimized for use as a player in an editing system. Also ideal for use in on-air or integrated audio/video systems

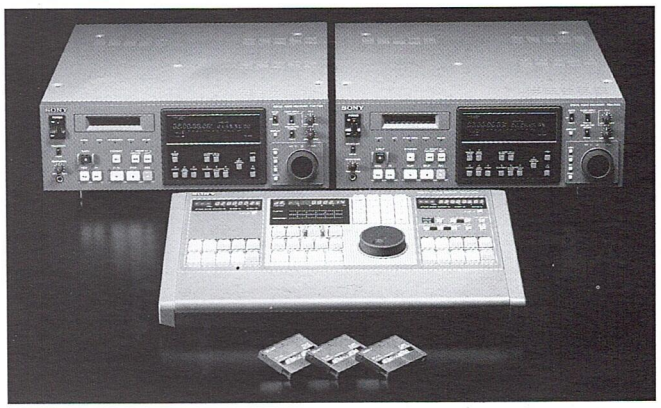
- Chase synchronisation
- Time code recording
- Serial remote control (RS-422)
- Seamless punch in/punch out recording

PCM-7050

The PCM-7050 is the top of the range model, and is recommended for use as the recorder in an editing system.

- Millisecond accurate editing capability
- Frame accurate ID editing
- Over 5 seconds spot erase
- Electronic edit rehearsal and trimming

RM-D7300



The RM-D7300 provides comprehensive control over editing operations.

PCM-7000 SERIES SPECIFICATIONS

PCM-7010/7030/7050

Recording system:	2-channel Rotary-head DAT
Tape speed:	8.15mm/sec
Recording time:	120 minutes (with Sony DT-120R)
FF and REW time:	Less than 60 sec (with Sony DT-120R)
Variable speed range:	± 12.5%
Search speed:	x⅕, x½ x1, x3, x8 or x16 normal speed (x16 and x⅕ operations are not available with PCM-7010)
Sampling frequencies:	PCM-7050/7030 48, 44.1kHz* for recording/playback PCM-7010 48, 44.1, 32kHz* for recording/playback *Recording at 32kHz is possible with digital inputs only
Quantization:	16-bit linear
Error correction:	Double-encoded RSC
Signals-to-noise ratio:	More than 90dB
Frequency response:	20~20,000Hz ± 0.5dB
Total harmonic distortion:	Less than 0.05% at reference level
Wow and flutter:	Below measurable limit
Channel separation:	More than 80dB at 8kHz
Emphasis:	50μsec/15μsec, ON/OFF switchable
Analogue Inputs/Outputs:	
INPUTS	+4dBu (+24dBu max.), 10k or 600 ohms, balanced, XLR-3-31 type (x2)
OUTPUTS	+4dBu (+24dBu max.), less than 50 ohms, balanced, XLR-3-32 type (x2)
Digital Inputs/Outputs:	PCM-7030/7050 AES/EBU: XLR-3-31 type for input XLR-3-32 type for output PCM-7010 AES/EBU: XLR-3-31 type for input XLR-3-32 type for output SDIF-2: BNC (x4) Unbalanced (IEC-958): Phono (x2)
Other Inputs/Outputs:	
TIME CODE INPUT	SMPTE/EBU, 0.5~10Vp-p at 10k ohms, XLR-3-31 type
TIME CODE OUTPUT	SMPTE/EBU, 2.4Vp-p at 600 ohm load, XLR-3-32 type
WORD SYNC INPUT/OUTPUT	TTL compatible, 75 ohms, BNC (x2)
VIDEO SYNC INPUT	NTSC/PAL/SECAM, 0.3~4Vp-p, 75 ohms, BNC
PARALLEL REMOTE	TTL compatible, D-sub 37-pin
SERIAL REMOTE	TTL compatible, DIN 8-pin RS-422, D-sub 9-pin (PCM-7050/7030 only)
COMPUTER I/F	RS-232C, D-sub 25-pin
MONITOR OUTPUTS	−20dBu at 10k ohm load, 150 ohms, unbalanced, phone jack (x2)
HEADPHONE OUTPUT	−26dBu at 8 ohm load, stereo phone
Power requirements:	PCM-7050/7030 AC 100/120/220/240V ± 10%, 50/60Hz PCM-7010 AC 100/120/220/230~240V ±10%, 50/60Hz
Power Consumption:	PCM-7010, 80W PCM-7030/7050, 50W
Dimensions:	PCM-7050/7030 424(W) x 132(H) x 474.5(D)mm (16¾ x 5¼ x 18¾") PCM-7010 424(W) x 132(H) x 450(D)mm (16¾ x 5¼ x 17¾")
Weight:	PCM-7050/7030 15kg (33lb) PCM-7010 18kg (40lb)

RM-D7300

Editing accuracy:	1 msec (when used with PCM-7050 with DABK-7030/7050)
Pre-roll time:	5-59 secs (1 sec steps)
Post-roll time:	2-59 secs (1 sec steps)
Crossfade time:	0-999 msec (1 msec steps)
Input level adjustment:	±6dB in 0.1dB steps (for PCM-7050 with DABK-7055)
Search speed:	x⅕, x½, x1, x3, x8 or x16 normal speed
Recorder interface:	RS-422, D-sub 9-pin
Power requirements:	AC 100 240V + 10%, 50/60Hz
Power consumption:	10W
Dimensions:	464(W) x 78(H) x 308(D)mm (16⅜ x 3⅛ x 12¼")
Weight:	4.5kg (8lb 13oz)

Supplied accessories
AC Power Cord
9-pin remote cable (x2)

PCM-7000 SERIES OPTIONS

Time Code Reader/Generator
DABK-7030/7010

- Provides capability of reading and generating SMPTE/EBU time code
- Enables a recorder to operate in synchronisation with an external video sync signal
- Provides time code chase synchronisation facility to PCM-7030/7050

Digital I/O
DABK-7031/7011A/7011B

- DABK-7031 provides AES/EBU interface
- DABK-7011A/7011B also provide unbalanced digital I/O interfaces. DABK-7011B additionally interfaces to Sony SDIF-2.
- Option allows recorder to lock to an external word sync signal

Memory Start
DABK-7032/7012

- Uses 4M/bit digital memory to give an instant start playback facility

Computer Interface
DABK-7033/7013

- Enables recorder to be controlled from a computer RS-232C port. Useful for building up a sound effects library or a programmed playback system

Edit Memory
DABK-7055

- Provides improved editing precision and flexibility with the PCM-7050
- Memory search/rehearsal
- Crossfade at each edit point
- 1ms editing accuracy

Remote Controller
RM-D7100

- Provides remote control of a recorder transport functions via 37-pin interface

Dual Remote Controller
RM-D7200

- Provides remote control of two recorder transports
- Can be used for simple editing

19-inch Rack Mount
RMM-30

- Sliding Rail Kit

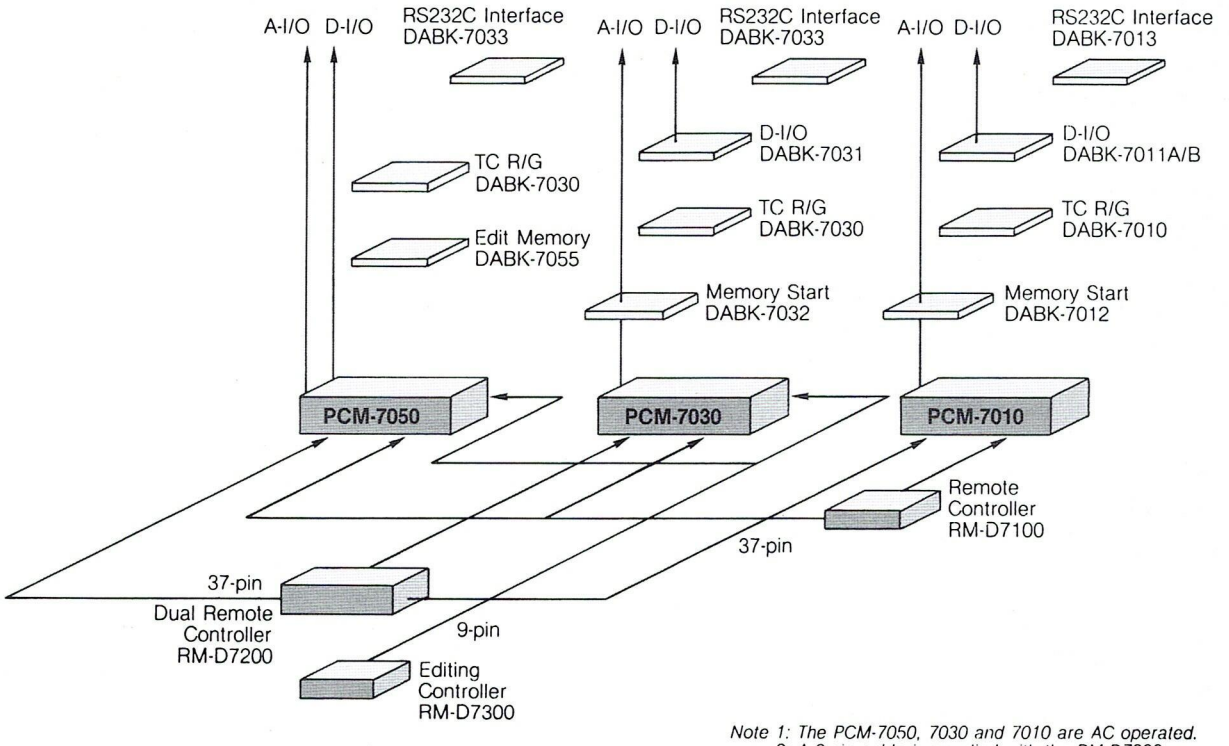
RMM-31

- Rack Mount Adaptor with handles

OPTION COMPATIBILITY

	PCM-7050	PCM-7030	PCM-7010
Time Code Reader/ Generator Option	DABK-7030		DABK-7010
Ditigal I/O Option	(standard)	DABK-7031	DABK-7011A DABK-7011B
Memory Start Option	(standard)	DABK-7032	DABK-7012
Computer Interface (RS232C) Option	DABK-7033		DABK-7013
Edit Memory Option	DABK-7055	—	
Remote Controller	RM-D7100		
Dual Remote Controller	RM-D7200		
Editing Controller	RM-D7300		—

SYSTEM CONFIGURATION



Note 1: The PCM-7050, 7030 and 7010 are AC operated.
2: A 9-pin cable is supplied with the RM-D7300.
3: The PCM-7010 comes supplied with connection cables.

Professional DAT Recorder

TCD-D10 PRO II

- Portable DAT recorder of extremely compact dimensions
- Absolute-Time recording
- Microprocessor-controlled reliable mechanism
- Self diagnostics for easy maintenance
- High performance L/R independent A/D converters with two times oversampling digital filter to eliminate phase distortion
- LCD multi-function display
- AES/EBU digital audio interface
- Balanced, switchable MIC/LINE inputs
- Built-in hours meter, microphone low-cut filter and microphone limiter/attenuator
- 4-motor, direct-drive tape transport
- High-speed search using the ID recorded in subcode area
- Built-in speaker
- AC/DC operation – AC100-240V with ACP-88 AC adaptor; DC 6V with NP-22H rechargeable battery pack

Supplied accessories
Carrying case
Shoulder belt
NP-22H Rechargeable battery packs x2
ACP-88 AC power adaptor
BC-D10 Charging adaptor
RMT-D10P Remote controller

Optional accessories
NP-4000 Shoulder battery pack
DCP-80 Voltage stabiliser for NP-4000 battery pack
DCC-16A Car lighter socket to DCP-80 cable

Specifications

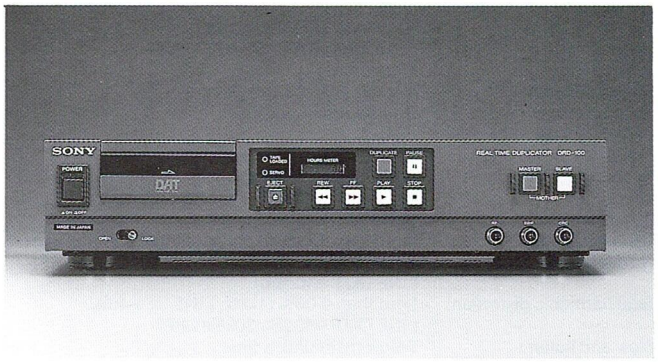
Recording system:	Rotary-head DAT recording
Recording time:	120 minutes (with Sony DT-120)
Tape speed:	8.15mm/sec
FF and REW time:	Approx. 60sec (with Sony DT-120)
Error correction:	Double-encoded RSC
Sampling frequency:	
Playback	32kHz, 44.1kHz, 48kHz
Recording	ANALOGUE IN: 48kHz BALANCED DIGITAL IN: 32, 44.1, 48kHz
Quantization:	16-bit linear
Dynamic range:	More than 85dB (1kHz, emphasis OFF, IHF-A)
Frequency response:	20-22,000Hz ±1.0dB (LINE IN +4dBu LINE OUT −10dBu)
Total harmonic distortion:	Less than 0.06% (1kHz, LINE IN +4dBu, LINE OUT −10dBu 30kHz LPF)
Wow and flutter:	Below measurable limit
Analogue inputs:	MIC/LINE IN (XLR-3-31 type x2)
MIC	−60dBu (−40dBu with attenuator ON), 10k ohms, balanced
LINE	+4dBu, 47k ohms, balanced
Analogue outputs:	LINE OUT (phono x2) −10dBu, 700 ohms, unbalanced HEADPHONE OUT (stereo phone x1) 20mW + 20mW, 27 ohms (load impedance 32 ohms)
Digital I/O:	BALANCED D-I/O (12-pin x1) Input impedance: 110 ohms ± 20% Input voltage: 200mV-10V Output: 5V ±20% at 110 ohm load
Built-in speaker:	5cm (2") dia.
Power requirements:	DC 6V with NP-22H rechargeable battery pack AC 100-240V with ACP-88 AC adaptor
Battery life:	Approx. 1.5 hours continuously with a fully charged NP-22H
Dimensions:	253(W) x 55(H) x 191(D)mm (10 x 2¼ x 7⅝")
Weight:	2.0kg (4lb 7oz) with NP-22H 1.8kg (4lb) without NP-22H

DIGITAL RECORDERS

REAL TIME DAT DUPLICATION SYSTEM

Master/Slave Duplicator

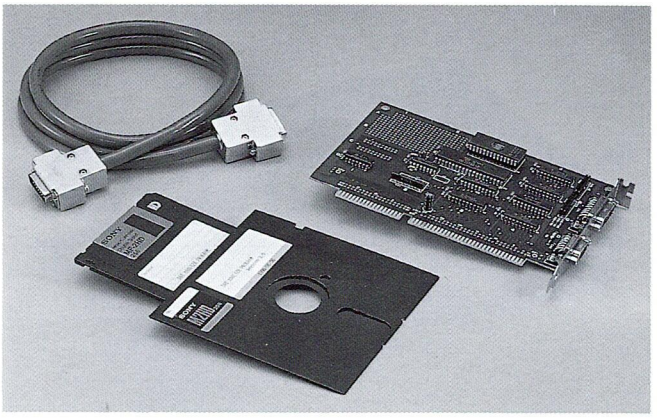
DRD-100



- DAT Real Time Duplicator
- Over 50 units can be connected in a duplicating system and can be switched to Master or Slave mode to record or playback DAT format programme material
- Duplicates sub-code information in addition to programme material

DAT Error Rate Analyzer

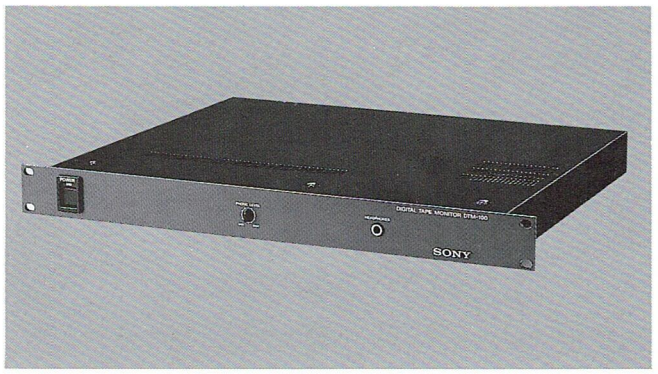
DRD-A100



- DAT Error Rate Analysis system
- Comprises floppy disk software and interface board for PC
- Two operating modes
  - Mode I displays block errors in real time
  - Mode II detects block errors in a six second cycle, memorising data in internal RAM and displaying it on the PC monitor. When a C-2 error occurs, its location is shown on an error map
- Error data can be printed out

Digital Tape Monitor

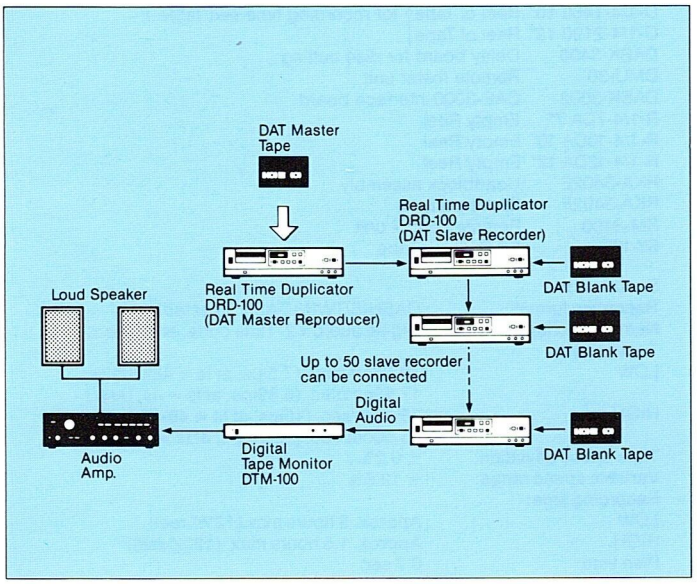
DTM-100



- Converts DAT format signals to analogue audio for monitoring
- Line and headphone outputs

REAL TIME DAT DUPLICATION SYSTEM

SYSTEM APPLICATION



DIGITAL AUDIO STATIONARY HEAD
DASH

Digital Audio 2-Channel Recorder

PCM-3402

- Switchable tape speeds – 7.5ips (DASH-S) or 15ips (TWIN-DASH)
- Three hours of recording (7.5ips) or 1.5 hours of recording (15ips) using 12½" reels
- Built-in editing capabilities to enable electronic editing between two PCM-3402's
- Two pairs of time code generator/readers to allow chase synchronisation as well as synchronisation between two time codes of different types
- Six chase synchronisation modes to bring greater convenience and efficiency in post-production
- Digital level control (+12dB to −∞) and balance control (max ±3dB)
- 50-pin parallel remote and 9-pin serial remote connectors
- 3-head configuration (REC-PB-REC) to enable sync recording (punch in/out) and simultaneous monitoring
- Individually selectable crossfade times for punch in/out operation and electronic editing
- 16M-bit stereo digital memory capable of memorising up to 12 seconds of stereo audio data (six seconds each from recorder and player) to permit precise and efficient edit point search

TABLE 1

Model	Tape Fs	7" Sony D-1/4-730	10" Sony D-1/4-1460	12" Sony D-1/4-2190
PCM-3402 (7.5ips)	44.1 kHz	69min.	139min.	208min.
	48kHz	63min.	127min.	191min.
PCM-3402 (15ips)	44.1kHz	34min.	69min.	104min.
	48kHz	31min.	63min.	95min.

Supplied accessories
Stand
Power cord
10½" empty reel
Reel clamps (x2)

Optional accessories

D-1/4-730 7"	Reel of Tape } for recording time see Table 1
D-1/4-1460 10"	Reel of Tape
D-1/4-2190 12"	Reel of Tape
DABK-3400	Delay board for disc cutting
DMU-30	Remote meter unit
DABK-3002	DAE-3000 interface board
R-1/4-7DA 7"	Empty Reel
R-1/4-10DA 10"	Empty Reel
R-1/4-12DA 12"	Empty Reel
RKA-3402E	Headblock assembly
RKA-3402F	Spare parts kit
RM-3400	Remote control unit
SY-10D	¼" Splicing Tape

Specifications

Recording format:	DASH-S/TWIN-DASH selectable
Number of channels:	Digital audio x 2. Time code, and Cue x2
Tape speed:	
LOW	19.05cm/sec. (7.5ips, at fs = 48kHz) or 17.50cm/sec. (6.89ips, at fs = 44.1kHz)
HIGH	38.1cm/sec. (15ips, at fs = 48kHz) or 35.00cm/sec. (13.78ips, at fs = 44.1kHz)
Tape speed deviation:	± 0.2%
Variable speed range:	± 12.5%
Recording time:	
LOW	Approx. 3 hours max (12½" reel)
HIGH	Approx. 1.5 hours max. (12½" reel)
Rise time:	0.7 sec.
FF/REW time:	Approx. 3.5 minutes (10½" reel)
Synchronisation accuracy:	Within 0.4msec. (using the built-in synchroniser)
Editing accuracy:	Within 1msec (electronic editing)
Tape:	D-1/4-730 (7") D-1/4-1460 (10½") D-1/4-2190 (12½")
Sampling frequency:	48kHz/44.1kHz/44.056kHz (selectable)
Quantisation:	16-bit linear
Dynamic range:	More than 90dB (Emphasis ON)
Frequency response:	20-20,000Hz $^{0.5}_{0}$dB
Total harmonic distortion:	Less than 0.05% at 1kHz
Wow and Flutter:	Limited only by crystal oscillation accuracy
Inter-channel crosstalk:	More than 80dB at 8kHz (max. input level)
Digital level control:	+12dB to −∞
Cross-fade:	0-10.7msec (16 steps, splice dit), 0-171msec (16 steps, punch in/out edit and electronic edit at fs = 48kHz)
Emphasis:	50μsec/15μsec
Inputs/Outputs:	
LINE IN (x2)	+4dBu (+24dBu max.) adjustable range: −2dB to +10dB, 10k ohms transformerless, balanced, XLR-3-31 type
LINE OUT (x2)	+4dBu (+24dBu max.) 600 ohm load, adjustable range: −10dB to +2dB, less than 50 ohms, transformerless, balanced, XLR-3-32 type
AUX TRACK IN (x2)	+4dBu (+14dBu max.), 10k ohms, transformerless, balanced, XLR-3-31 type
AUX TRACK OUT (x2)	+4dBu (+14dBu max.) 600 ohm load, less than 50 ohms, transformerless, balanced XLR-3-32 type
DIGITAL INTERFACE IN (x2)	AES/EBU and SDIF-2 (Sony Digital Interface Format) selectable, AES/EBU: RS422, XLR-3-31 type SDIF-2: TTL compatible, BNC
DIGITAL INTERFACE OUT (x2)	AES/EBU and SDIF-2 (Sony Digital Interface Format) AES/EBU: RS422, XLR-3-32 type SDIF-2: TTL compatible, BNC
WORD SYNC (x1)	50% duty, TTL compatible, 75 ohms, BNC
WORD SYNC OUT (x1)	50% duty, TTL compatible, 75 ohms, BNC
COMPOSITE SYNC IN (x1)	NTSC/PAL/SECAM, more than 0.3Vp-p, 75 ohms, BNC
TIME CODE IN (x1)	SMPTE/EBU Format, 10k ohms, balanced, XLR-3-31 type
TIME CODE (x1)	SMPTE/EBU Format, 200 ohms, balanced, XLR-3-32 type
PARALLEL REMOTE CONTROL IN/OUT (x1)	TTL compatible, D-sub 50s
SERIAL REMOTE CONTROL IN/OUT (x1)	Sony 9-pin remote, RS-422, D-sub 90s
Power requirements:	100-120/220-240V AC selectable, 50/60Hz
Power consumption:	300W
Dimensions:	680(W) x 1,120(H) x 728(D)mm (26¾ x 44⅛ x 30¾") with supplied stand
Weight:	Approx 77kg (170lb) with supplied stand

DIGITAL AUDIO STATIONARY HEAD
DASH

Digital Audio Multi-Channel Recorder

PCM-3324S

- Modular 24-channel digital multitrack, configurable to individual user requirements:
  – nine option boards
  – two alternative types of remote control units
- Fully compatible with all 24 and 48-track DASH machines
- Extremely high-speed pinch rollerless transport
- Pre-striping and Erasing at 4 x real speed; including Control Track and Time Code
- Compact design and low-power consumption
- Standard features include:
  – 1-bit A/D and 18-bit D/A technology
  – V-clock and vari-sync facilities
  – 10-inch, 12.5-inch and 14-inch reel capacity
  – Automatic alignment under CPU control
  – Multi-format time code generator
  – Advance output for digital mixing consoles
  – 48kHz, 44.1kHz and 44.056kHz sampling frequencies

Supplied accessories
10-inch reel
AC power cord
Extender board

Optional accessories

AM-9	Audio marker pen
CY-24A	Splicing block
D-1/2-1460	10 inch reel of tape (32 minutes at 44.1kHz)
D-1/2-2920	14 inch reel of tape (65 minutes at 44.1kHz)
RH-10DA	10 inch empty reel
RH-14DA	14 inch empty reel
SMK-0032	IEEE-488 interface cable for RM-3324

Specifications

Recording format:	DASH-F (Digital Audio Stationary Head – Fast Version) Normal density
Number of tracks:	Digital tracks 1-24 Analogue tracks 1, 2 Time code, CTL
Quantization:	16-bit linear
Error correction:	Cross interleave
Recording time:	60 min (Fs = 48kHz) with 14-inch reel 65 min (Fs = 44.1kHz) with 14-inch reel
Tape speed:	76.20cm/s (Fs = 48kHz) 70.01cm/s (Fs = 44.056kHz)
Variable tape speed:	±12.5%
Fast forward time:	4 min 20 sec (with 14-inch reel)
Capstan lock-in time:	Less than 0.5
Recommended tape:	D-½-2920 (14-inch reel) D-½-1460 (10½-inch reel)
Reel size:	14, 12.5, 10-inch
Digital audio channels:	
Frequency response:	20Hz to 20kHz within +0.5/−1.0dB
Total harmonic distortion:	Less than 0.5% (20Hz to 20kHz at reference level)
Signal to noise ratio:	More 90dB (at maximum level, emphasis on, 1kHz)
Crosstalk between channels:	Below −80dB
Emphasis:	50/15us
Signal processing delay:	Average delay in playback 252 blocks Average delay in recording 236 blocks Advance out 256 words fixed

Crossfade time:

Fs (kHz)		44.056	44.1	48
Electronic editing	min	1.48 ms	1.48 ms	1.35 ms
	max	371.9 ms	371.5 ms	341.3 ms
Splice editing		5.65 ms	5.65 ms	5.19 ms

16 steps of adjustment between min and max

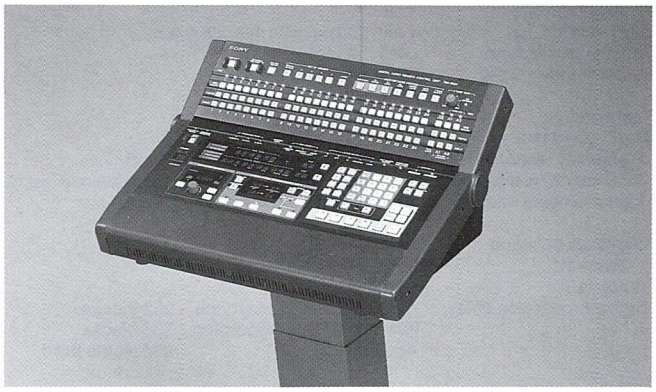
Editing accuracy:	1 sector (1ms at F_S = 48kHz)
Analogue audio channels:	
Frequency response:	40Hz to 15kHz ±3dB
Signal to noise ratio:	More than 60dB
Total harmonic distortion:	Less than 3%
Wow and flutter:	Less than 0.1% RMS WTD, LPF-200Hz
Analogue inputs/outputs:	
DIGITAL AUDIO IN	+4dBs (+24dBs max.), 10k ohms or more, balanced, XLR-3-31 type (x24)
DIGITAL AUDIO OUT	+4dBs (+24dBs max.), less than 100 ohms, balanced, XLR-3-32 type (x24)
ANALOG AUDIO IN	+4dBs (+12dBs max.), 10k ohms, balanced, XLR-3-31 type (x2)
ANALOG AUDIO OUT	+4dBs (+12dBs max.), less than 100 ohms, balanced, XLR-3-32 type (x2)
Other inputs/outputs:	
TIME CODE IN	0.5 to 10Vp-p, more than 10k ohms, balanced, XLR-3-31 type (x1)
TIME CODE OUT	2.4Vp-p ± 0.1V, less than 100 ohms, balanced, XLR-3-32 type (x1)
WORD SYNC INPUT/OUTPUT	TTL compatible, 75 ohms, unbalanced, with loop through, BNC (x2, each)
SECTOR SYNC INPUT/OUTPUT	TTL compatible, 75 ohms, unbalanced, with loop through, BNC (x2, each)
SECTOR ADDRESS INPUT/OUTPUT	TTL level, 75 ohms, with loop through, BNC (x1, each)
REFERENCE VIDEO	
BLACK & BURST:	0.3Vp-p, 75 ohms
COMPOSITE SYNC:	4Vp-p, 75 ohms
SQUARE WAVE:	0.3Vp-p to 5Vp-p, 75 ohms
REMOTE-1 IN	SRIF-1 format, TTL level, D-sub 37P (female x1), W/DABK-3321
EXT. SPEED CONTROL IN	±10V, more than 10k ohms, balanced, XLR-3-31 type (x1), W/DABK-3321
EXT. PHASE CONTROL IN	±10V, 10k ohms, balanced, XLR-3-31 type (x1), W/DABK-3321
REMOTE-2 IN	RS-422, D-sub 9P (x1), W/DABK-3322
RM-3324S IN	DIN 8-pin (x1), W/DABK-3322
REMOTE-3 IN	SRIF-3 format, RS/422, D-sub 50P (female x1), W/DABK-3323
REMOTE-4 IN	SRIF-4 format, D-sub 50P (male x2), D-sub 25P (male x1), W/DABK-3324
Dimensions:	766(W) x 943(H) x 726(D)mm
Weight:	Approx 120kg
Power requirements:	AC 100-240V/50/60Hz
Power consumption:	800W

DIGITAL RECORDERS

DIGITAL AUDIO STATIONARY HEAD
DASH

PCM-3324S OPTIONS

Remote Control Unit
RM-3324



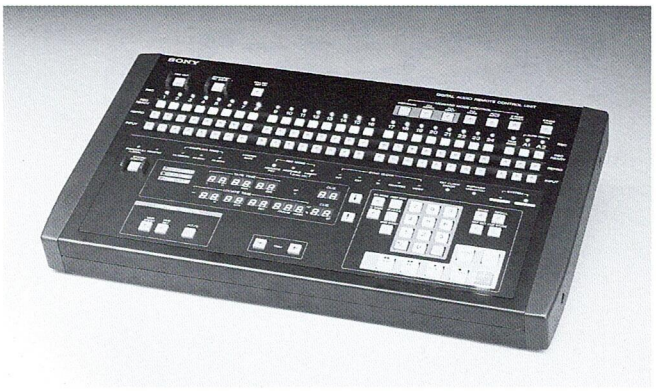
- Full function Remote Control Unit
- Stand included
- Built-in machine to machine synchronizer with dedicated electronic editing mode
- Cross fade time display
- Multiple digital ping pong
- Requires DABK-3323 option to be fitted to PCM-3324S

Supplied accessory
50-pin remote cable

Specifications

Dimensions:	Unit, 472(W) x 399(H) x 187(D)mm Stand, 525(W) x 600(H) x 536(D)mm
Weight:	Unit, 11kg Stand 14.5kg
Power requirement:	AC 100-240V, 50/60Hz
Power consumption:	30W

Remote Control Unit
RM-3324S



- Simple Remote Control Unit
- Optional stand (SU-15)
- Power supplied via remote control cable
- Requires DABK-3322 option to be fitted to PCM-3324S

Supplied accessory
DIN 8-pin remote cable

Optional accessories
SU-15 stand
SU-224 stand

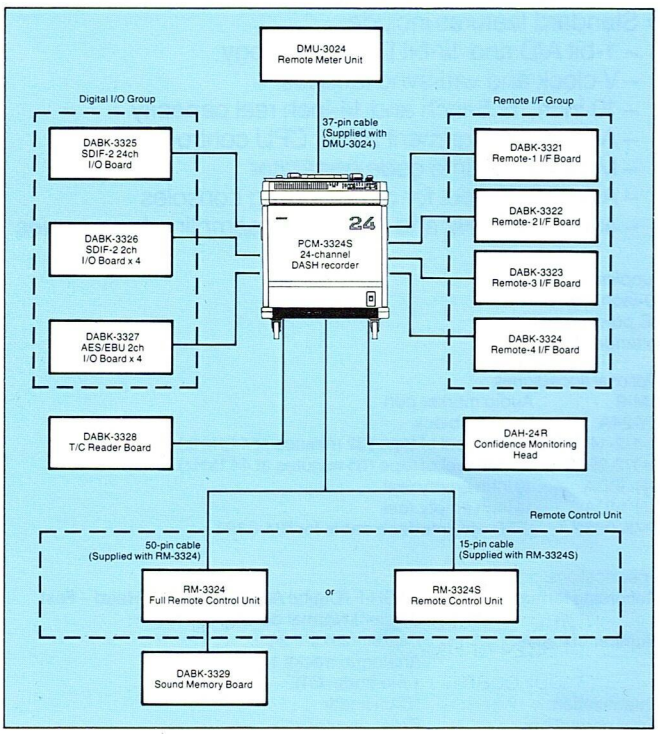
Specifications

Dimensions:	Unit, 472(W) x 266(H) x 78(D)mm
Weight:	3kg
Power requirement:	Supplied from PCM-3324S

CONTROL FUNCTION COMPARISON

Function	PCM-3324S	Full remote RM-3324	Simple remote RM-3324S
DASH Sync	No	Yes	No
DASH Chase	No	Yes	Yes
Time Code Chase	No	Yes	Yes
Sound Memory	No	Yes	No
Digital Ping Pong	No	Yes	No
Auto Punch I/O	No	Yes	No
Digital 2ch I/O Select	No	Yes	Yes
X-fade Time Select	No	Yes	Yes
Fs Shift	Yes	No	No
ADV Out Switch	Yes	No	No
Vari Speed	No	Yes	Yes
Auto Locate	Cue point only	Yes	Yes
Repeat	No	Yes	Yes
Cue Point	2	10/100 selectable	10/100 selectable
CH Set-up	No	Yes	No
CH Control	No	Yes	Yes
All Input	Yes	Yes	Yes
All Repro	Yes	Yes	Yes
All Ready	Yes	No	No
Rec Disable	No	Yes	Yes
Master Safe	Yes	No	No

SYSTEMS OPTION DIAGRAM



PCM-3324S OPTIONS

Optional Boards
All PCM-3324S board options are retrofittable, allowing a machine to be user reconfigured in a few minutes.

Remote Control Interface
DABK-3321

- Parallel transport control with tallies
- Includes external phase and speed inputs from external synchronizer

Remote Control Interface
DABK-3322

- Serial interface board for use with simple Remote Control Unit RM-3324S
- Includes power connection for RM-3324S
- 9-pin RS-422 serial interface, for transport control only (Full implementation of the RS-422 interface will be a future option)

Remote Control Interface
DABK-3323

- Serial interface board for full Remote Control Unit RM-3324
- Includes sound memory external trigger input

Remote Control Interface
DABK-3324

- Parallel interface for remote control of Record/Ready function from mixing console
- Includes time code track and analogue cue tracks 1 and 2

Digital I/O
DABK-3325

- 24-channel SDIF-2 digital input/output board

Digital I/O
DABK-3326

- 2-channel SDIF-2 digital input/output board
- Input and output channels can be assigned from an RM-3324 or RM-3324S
- Up to four boards can be installed

Digital I/O
DABK-3327

- 2-channel AES/EBU digital input/output board
- Input and output channels can be assigned from an RM-3324S or RM-3324
- Up to four boards can be installed

Time Code Reader Board
DABK-3328

- Time code chase synchronizer
- High-speed time code reader
- Time code regenerator

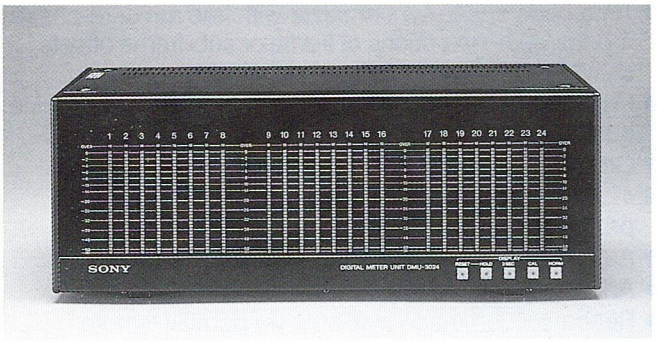
Sound Memory Board
DABK-3329

- 20-second stereo sampling memory
- Editing of start and end points
- External trigger functions
- Reverse playback
- For use with RM-3324 only

Confidence Monitor Head
DAH-24R

- Allows confidence monitoring with blank or pre-striped tape

Remote Meter Unit
DMU-3024



- 32-segment Remote Meter Unit
- 2-second or indefinite peak hold
- Expanded scale facility for reference level adjustment

Dimensions:	424W x 163(H) x 325(D)mm
Weight:	8kg
Power requirement:	AC100-120/220-240V, 50/60Hz
Power consumption:	38W

DIGITAL AUDIO STATIONARY HEAD
DASH

Digital Audio Multi-Channel Recorder

PCM-3348

- ½-inch DASH recorder with 48 digital audio tracks, 2 cue tracks and one track each for CTL and time code signals
- Compatible with PCM-3324S in recording and playback of digital audio tracks 1 through 24
- 2-times oversampling digital filtering for both A/D and D/A converters
- Comprehensive microprocessor-controlled servo system, unique design and excellent mechanics for fast and stable transport
- Built-in time code generator/reader capable of handling SMPTE DF/NDF, EBU and film time codes
- 48kHz, 44.1kHz or 44.056kHz sampling frequency selectable
- Advanced digital output function enables pre-delay adjustment in 1-sample steps to compensate for signal processing delay in external equipment
- 20-second stereo sampling memory with editing of start and end points, multiple external trigger options and reverse playback
- Multiple digital ping pong facility that allows all 48 tracks to be digitally bounced within the machine
- Time code chase synchronizer with free run or re-chase modes, with the options of frame or sub-frame offsets as well as variable re-sync capability
- Dedicated electronic edit mode for machine to machine editing
- Crossfade time display
- 47.952kHz sampling frequency for HDTV post-production
- Automatic scroll facility for + and − trim keys
- Additional auto punch mode
- Rehearsal command available via parallel remote control port

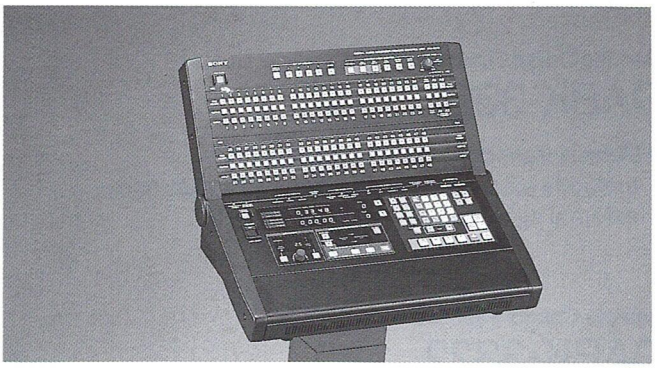
Supplied accessories
AC power cord (x2)
Remote cable 10m (x1)
Empty reel (10-inch) RH-10DA (x1)
Multi-connector plug 27P (Male) (x6)
Multi-connector plug 27P (Female) (x6)
RM-3348 with stand (x1)

Optional accessories

AM-9	Audio marker pen
CY-24A	Splicing block
SMK-0032	IEEE-488 Interface cable for RM-3348

PCM-3348 Remote Control Unit with stand

RM-3348



- Variable speed control
- Time code chase synchronizer
- Multiple digital ping pong
- Stereo sampling memory
- Built-in synchronizer for multiple machine working
- Dedicated edit mode for electronic editing
- Memory back-up

Specifications

Dimensions:	w/ stand: 526(W) x 1068(H) x 536(D)mm w/o stand: 490(W) x 220(H) x 472(D)mm
Weight w/o stand:	13.5kg
Weight w/ stand:	28kg
Power requirement:	AC 100-120V/220-240V, 50/60Hz
Power consumption:	42W

DIGITAL AUDIO STATIONARY HEAD
DASH

PCM-3348 SPECIFICATIONS

Recording format:	DASH F (Double Density)
Number of tracks:	52 (48 digital audio tracks, control track, TC track and 2 cue tracks)
Sampling rate:	48kHz, 44.1kHz and 44.056kHz (switchable)
Tape speed:	76.20cm/sec. (at fs = 48kHz) 70.01cm/sec. (at fs = 44.1kHz) 69.94cm/sec. (at fs = 44.056kHz)
Variable speed range:	± 12.5%
Recording time:	60 minutes (14" reel at fs = 48kHz) 65 minutes (14" reel at fs = 44.1kHz, 44.056kHz)
RWD and FF time:	4 min. 20 sec. (with 14" reel)
Quantisation:	16-bit linear
Dynamic range:	More than 90dB (emphasis ON at 1kHz)
Frequency response:	20Hz-21.7kHz +0.5dB-1.0dB (at fs = 48kHz)
Total harmonic distortion:	Less than 0.1% (+4dBu)
Wow and flutter:	Below measurable limit
Inter-channel crosstalk:	Below −80dB, 20Hz-21.7Hz (fs = 48kHz)
Editing resolution:	1 sector (1.00msec. at fs = 48kHz, 1.088msec. at fs = 44.1kHz, 1.090msec. at fs = 44.056kHz)
Editing:	Sync recording, punch in/out, and splice editing (Crossfade is available at every editing point.)
Crossfade:	1.4msec. to 341.3msec. (fs = 48kHz) or 1.5msec. to 371.5msec. (fs = 44.1kHz) or 1.5msec. to 371.9msec. (fs = 44.056kHz) for punch in/out (variable in 16 steps) 5.2msec. (fs = 48kHz) for splice editing
Emphasis:	ON/OFF switchable for each channel, 50μ sec./15μ sec.
Analogue inputs/outputs:	
DIGITAL AUDIO IN (x48)	+4dBu (+24dBu max.), 10k ohms or more, balanced, NK-27-31SL (1NK consists of 8 ch. In total 6NKs)
DIGITAL AUDIO OUT (x48)	+4dBu (+24dBu max.), less than 100 ohms load, balanced, NK-27-32S
ANALOGUE AUDIO IN (x2)	+4dBu (+19dBu max.), 10k ohms, balanced, XLR-3-31 type
ANALOGUE AUDIO OUT (x2)	+4dBu (+19dBu max.), less than 100 ohms load, balanced, XLR-3-32 type
Digital inputs/outputs:	
DIGITAL AUDIO I/O	SDIF-2 balanced (x48): RS-422, D-sub 50P (x2) and D-sub 50S (x2) SDIF-2 unbalanced (x2): TTL level, 75 ohms BNC AES/EBU IN: XLR-3-31 type AES/EBU OUT: XLR-3-32 type
Other inputs/outputs:	
WORD SYNC IN (x1 with loop through)	TTL level, 75 ohms, unbalanced, BNC
WORD SYNC OUT (x2)	TTL level, 75 ohms, BNC
SECTOR SYNC IN (x1 with loop through)	TTL level, 75 ohms, unbalanced, BNC
SECTOR SYNC OUT (x2)	TTL level, 75 ohms, BNC
SYNC INPUT VIDEO	COMPOSITE VIDEO (SYNC tip): 0.3V 75 ohms COMPOSITE SYNC: 4Vp-p 75 ohms SQUARE WAVE: 0.3Vp-p-5Vp-p 75 ohms
REMOTE 1 IN (x1)	SRIF-1 format, TTL level, D-sub 37P (Female)
REMOTE 3 IN (x1)	SRIF-3 format, RS-422, D-sub 50P (Female)
TIME CODE IN (x1)	0.5-10Vp-p, 10k ohms, balanced, XLR-3-31 type
TIME CODE OUT (x1)	2.4Vp-p, 200 ohms, balanced, XLR-3-32 type
SECTOR ADDRESS I/O (x1 each)	TTL level, 75 ohms, BNC
EXT. SPEED CONTROL IN (x1)	± 10V, 10k ohms, balanced, XLR-3-31 type
EXT. PHASE CONTROL IN (x1)	± 10V, 10k ohms, balanced, XLR-3-31 type
Power requirements:	AC 100-120V/220-240V, 50/60Hz
Power consumption:	1.2kW
Dimensions:	916(W) x 997(H) x 740(D)mm (36⅛ x 39⅜ x 29¼")
Weight:	Approx. 246kg (543lb)

SUPPORT PRODUCTS

Console Interface Board

DABK-3340

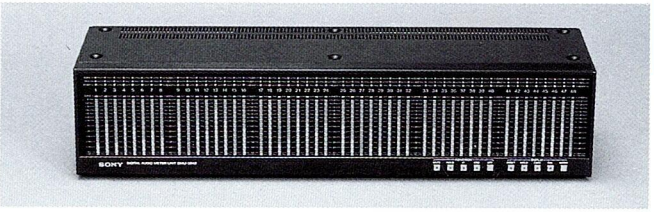
- Provides remote Record Ready function for digital audio tracks from external mixing console
- Provides Record Ready function for analogue cue tracks and time code track

Specifications

Dimensions:	278(W) x 128(H) x 40(D)mm
Weight:	1.2kg

Remote Meter Unit

DMU-3048



- Peak hold; peak signals can be held for two seconds or permanently
- Over-level indication displays clipping conditions
- Calibration adjustment can be selected in the normal mode or in 0.2dB steps
- Tape condition indication can be selected to indicate CRC error, interpolation, hold or mute
- REC, REC READY indication for each channel

Specifications

Dimensions:	700(W) x 152(H) x 200(D)mm (27¾ x 6 x 7⅞")
Weight:	10kg (22lb 1oz) w/o supplied cable
Power requirement:	AC 100-120V/220-240V, 50/60Hz
Power consumption:	46W

Update Kit for PCM-3348 machines below Ser No 20,000

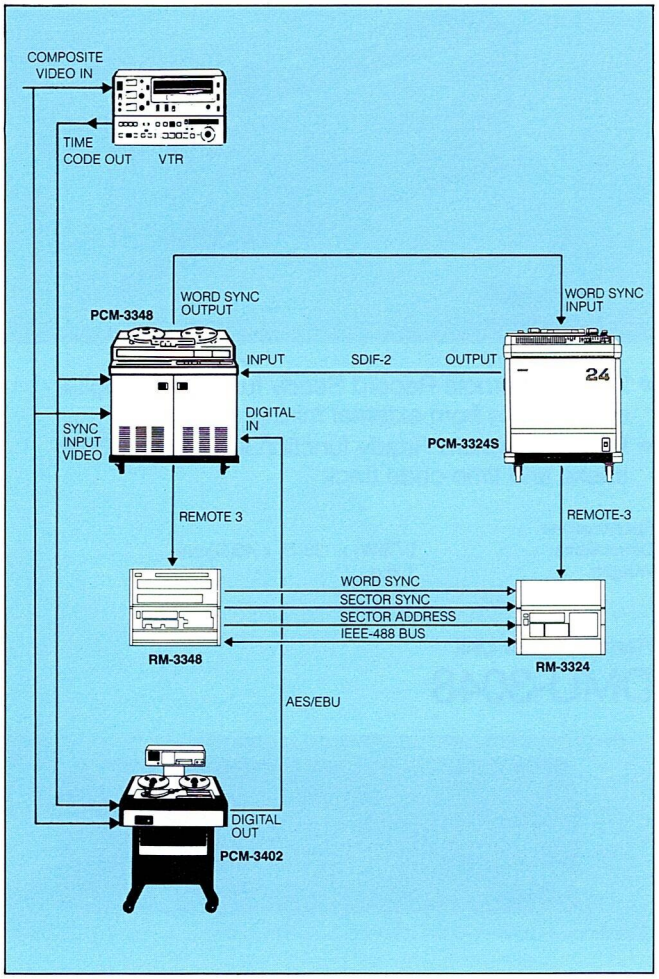
DABK-3341

- Stereo sampling memory
- Multiple digital ping pong
- Twenty other features

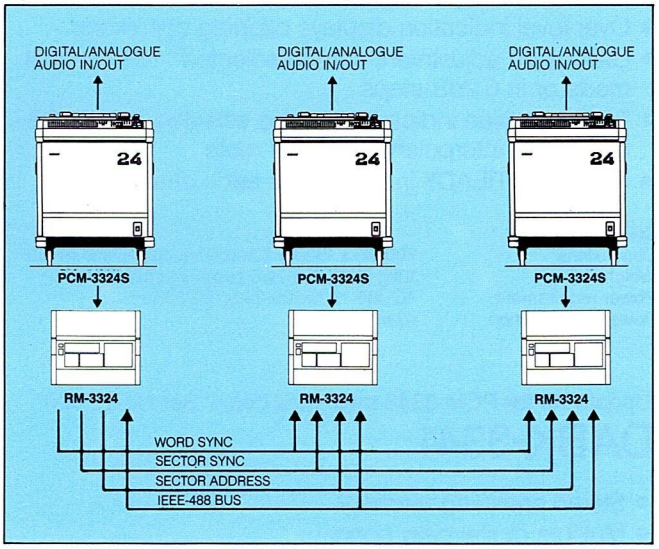
DIGITAL AUDIO STATIONARY HEAD
DASH

PCM-3324S/PCM-3348 SYSTEM APPLICATIONS

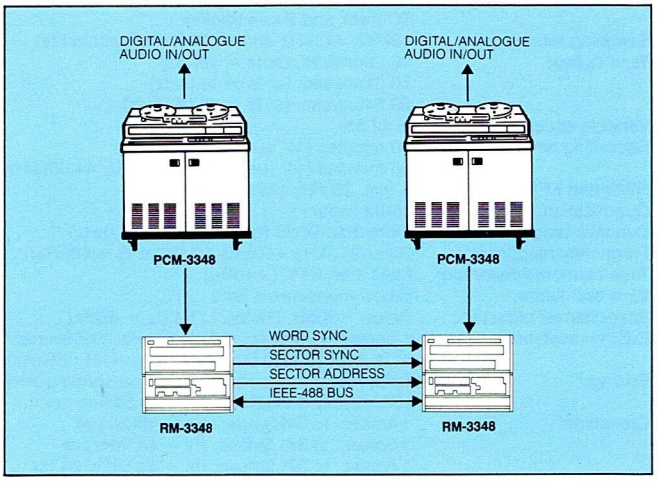
(1) Audio/Video Synchronization



(2) 48-Channel or 72-Channel System



(3) 96-Channel System



SECTION 6

SUPPORT PRODUCTS

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Digital Audio Effector

SDP-1000

- Two channel, digital audio effects unit
- For use in digital audio editing systems or between two digital audio or video recorders
- Four band parametric equalizer
- Two shelving equalizers with high and low cut filters
- Limiter, compressor, expander and noise gate
- AES/EBU, SDIF-2 and IEC 958 type II
- Advanced custom DSP IC using 32-bit arithmetic
- Dynamic automation based on timecode
- Snapshot automation of all settings
- High resolution digital faders with pan pots
- Centronix printer interface
- 2-inch floppy disc drive for automation and snap shot memory

Supplied accessories
AC power cord (x1)
AC plug adaptor (x1, AE model only)
9-pin to 9-pin cable (10m x 1, for controller)
9-pin to 15-pin cable (10m x 1, for CPD-1302/1402E)
PD-1 2" floppy disk (x10)
19" rack mount kit (x1)

Optional accessories
CPD-1302/1402E display monitor

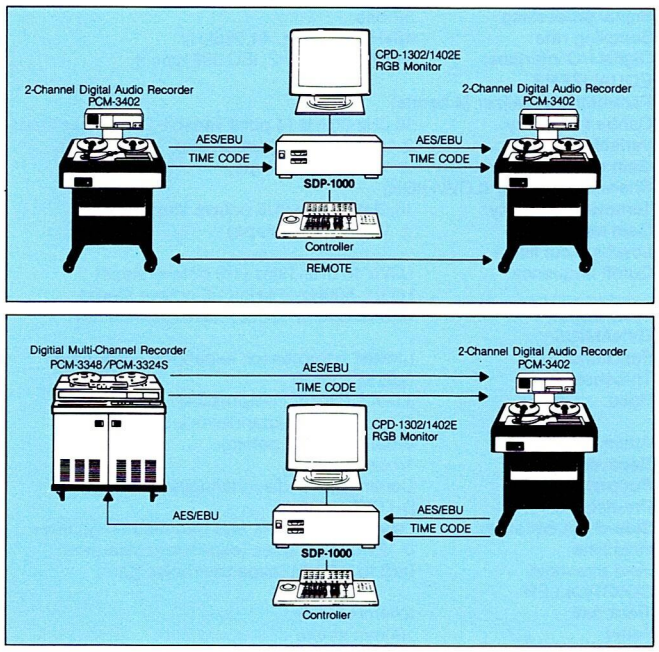
Specifications

Type:	Stereo digital audio signal processor
Signal processing:	32 bits
Sampling rate:	48kHz, 44.1kHz, 44.056kHz
Digital I/O interface:	AES/EBU, SDIF-2, IEC 958 type II
EQUALIZERS	
Parametric equalizer (4 bands)	
Centre frequency:	16.0Hz-20kHz (4 point variable, 1/6 octave steps)
Variable Q range:	2.45, 1.30, 0.68 (selectable)
Gain range:	± 12dB (0.5dB steps)
Shelving equalizer (LOW/HIGH)	
Turnover frequency:	16.0Hz-20kHz (1/6 octave steps)
Gain range:	± 12dB (0.5dB steps)
Low/high cut filters	
Cutoff frequency:	LOW: 16.0Hz-1kHz (1/6 octave steps) HIGH: 500Hz-20kHz (1/6 octave steps)
Filter slope:	6dB/octave or 12dB/octave (selectable)
DYNAMICS	
Functions:	Limiter, compressor, expander, noise gate
Threshold level:	0dB to −96dB
Ratio:	1.1-∞:1 (limiter/compressor) 1:1-1:64.992 (expander/noise gate)
Attack time:	0-550msec (64 points)
Recovery time:	1msec-9.43sec
Recovery mode:	Continuous or discontinuous
Pre-delay time:	0-1,023 words
Side-chain equalizer:	Low/high cut filters and parametric equalizer
Hold time:	0-129,024 samples (expander/noise gate)
Hold threshold:	0dB to −96dB (expander/noise gate)
CONTROLLER	
Track ball:	Ø44mm (1¾")
Fader:	100mm stroke
GENERAL	
Power requirements:	AC 100-240V, 50/60Hz
Power consumption:	Approx. 33W
Dimensions:	Processor: 424(W) x 155(H) x 465(D)mm (16¾ x 6⅛ x 18⅜") Controller: 418(W) x 87(H) x 249(D)mm (16½ x 3½ x 9⅞")
Weight:	Processor: Approx. 12kg (26lb 7oz) Controller: Approx. 2kg (4lb 7oz)

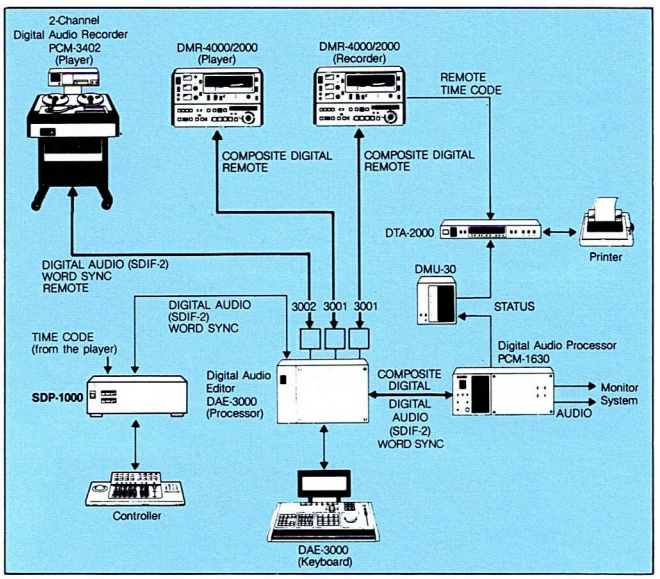
SUPPORT PRODUCTS

SYSTEM APPLICATIONS

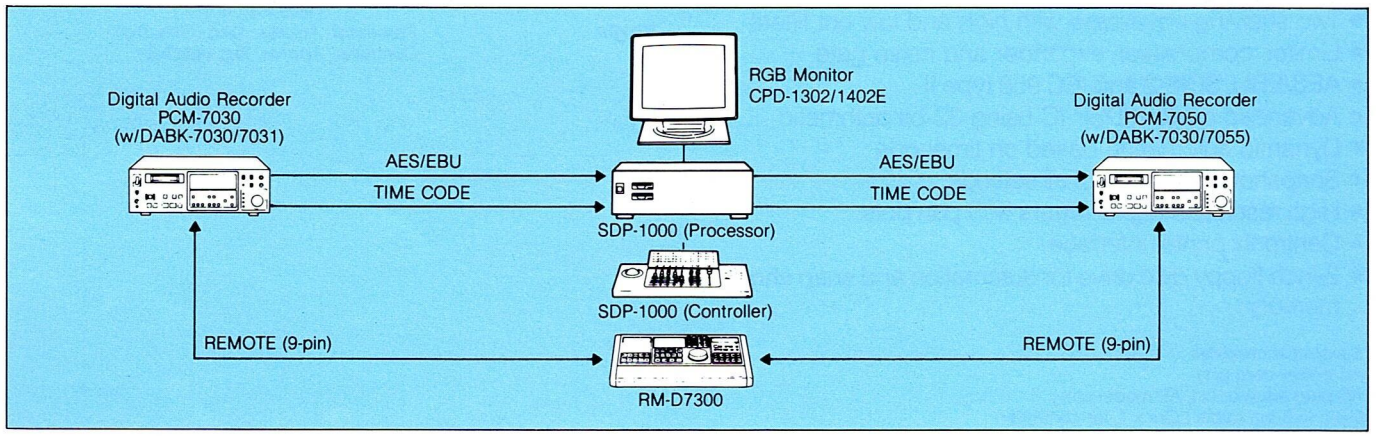
1. SOUND SWEETENING



2. CD MASTERING



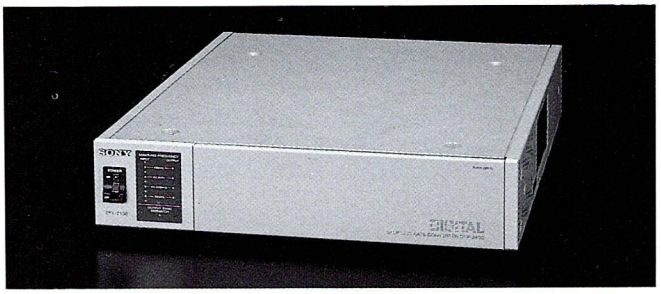
3. DAT EDITING SYSTEM



Sampling Rate Converter

DFX-2400

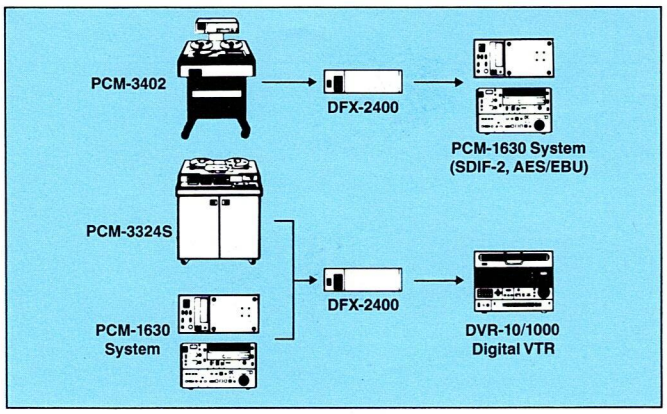
Fi 22900,- (4.92)



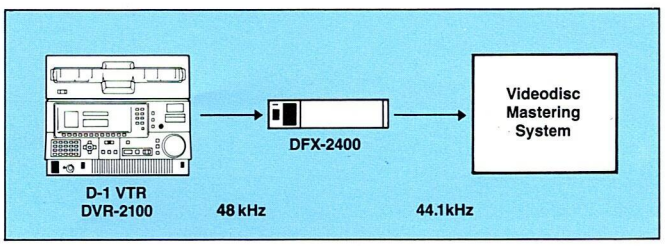
- Converts any sampling frequency between 30kHz and 50kHz into any of the following frequencies: 32kHz, 44.056kHz, 44.1kHz and 48kHz
- Also converts between AES/EBU interface format and Sony SDIF-2 format
- 16-bit conversion resolution
- Compact size and low power consumption
- Dimensions: 424(W) x 101(H) x 516(D)mm
- Weight: 11.5kg

SYSTEM APPLICATIONS

1. DUBBING BETWEEN DIFFERENT FREQUENCIES



2. VIDEODISC MASTERING WITH DIGITAL SOUND



SAMPLING FREQUENCIES & DIGITAL I/O

Model		Sampling Frequency				Digital I/O		
		48KHz	44.1KHz	44.056KHz	32KHz	AES/EBU	SDIF-2 (unbalanced)	S/P
PCM-3402	2-ch Digital Audio Recorder (DASH)	○	○	○		○	○	
PCM-3348	48-ch Digital Audio Recorder (DASH)	○	○	○		○	○	
PCM-3324S	24-ch Digital Audio Recorder (DASH)	○	○	○		○	○	
PCM-1630	Digital Audio Processor (CD Mastering)		○	○			○	
TCD-D10 PRO	2-ch Digital Audio Recorder (DAT Portable)	○	○		○	○		○
PCM-2000	2-ch Digital Audio Recorder (DAT Portable)	○	○	○	○	○		

SUPPORT PRODUCTS

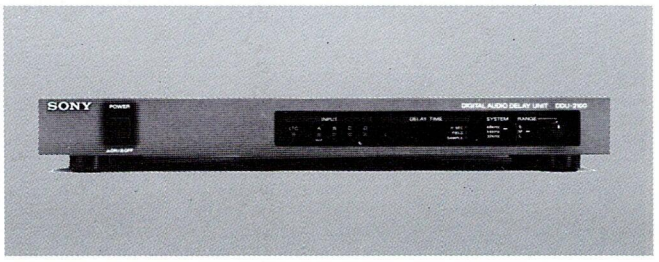
Vari Sync Unit

VSU-3310

- Provides 44.056kHz, 44.1kHz and 48kHz word clock outputs, phase locked to any of the following reference inputs:
  - 24Hz, 25Hz, 29.97Hz, 30Hz, 50Hz, 60Hz, 96Hz, 192Hz, 9.6kHz and 19.2kHz square wave
  - 25Hz, 29.97Hz and 30Hz composite video
  - 44.056kHz, 44.1kHz and 48kHz square wave
- Fixed or variable word clock output
- Auxiliary DC input
- 1U high
- Weight: 4.3kg

Digital Delay Unit

DDU-2100

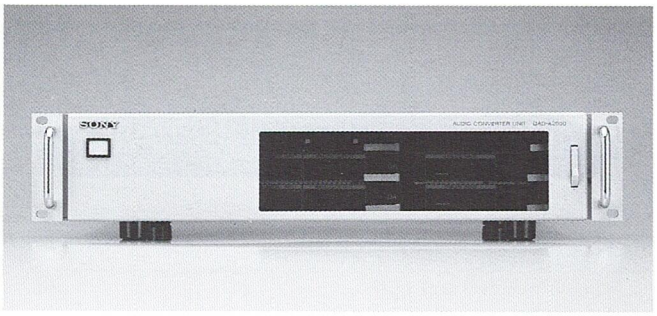


- Delays the AES/EBU format digital audio signal and Time Code signal (LTC) for synchronization with the digital video signal
- Delay can be selected from Small/Medium/Large ranges. (Up to a max of 8.5 Fields)
- Accept 32kHz, 44.056kHz, 44.1kHz and 48kHz sampling frequencies
- 1U high

SUPPORT PRODUCTS

Audio Converter Unit

DAD-A2000



- DAF-2000 converter frame holds up to four 2-channel converter boards
- A/D conversion:
  - 1-bit ΔΣ converter
  - 48kHz, 44.1kHz and 44.056kHz sampling frequencies
  - Synchronization with PAL/NTSC video signal, word sync or AES/EBU sync signal
- D/A conversion:
  - 18-bit converter with 8-times oversampling digital filter
  - Tracks external sampling frequency clock over the range 38–54kHz
- Line and headphone monitoring outputs of analogue inputs and outputs
- Self-diagnostic system
- Audio converter option for the DVR-2100

Standard DAD-A2000 System
DAF-2000 frame
DABK-2001 A/D converter board x2
DABK-2002 D/A converter board x2
19-inch rack mount adaptor
Board extender

Systems Components
DAF-2000 frame complete with :
19-inch rack mount adaptor
Board extender
Blank panel
DABK-2001 A/D converter board
DABK-2002 D/A converter board

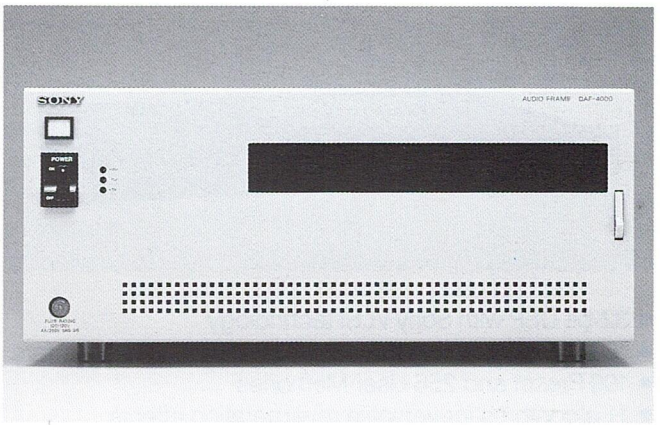
Optional accessories
RMM-30 rack mount rail

Specifications

Power requirement:	AC 100-120/200-240V, 50/60Hz
Power consumption:	50W
Dimensions:	424(W) x 88(H) x 350(D)mm
Weight:	9kg (DAD-A2000 system)

Audio Converter System

DAF-4000



- Flexible, 20-bit, audio converter system for digital audio routing installations and for high quality recording applications
- DABK-4001 A/D converter:
  - 4-bit ΔΣ converter
  - 48kHz, 44.1kHz and 44.056kHz sampling frequencies
  - Synchronization with PAL/NTSC video signal or word sync
- DABK-4002 D/A converter:
  - 20-bit converter with 8-times oversampling digital filter
  - Tracks external sampling frequency clock over the range 38–54kHz
- DAF-4000 converter frame holds up to eight of the above 2-channel converter boards
- Self-diagnostic system

Supplied accessories
19-inch rack mount adaptor
Board extender

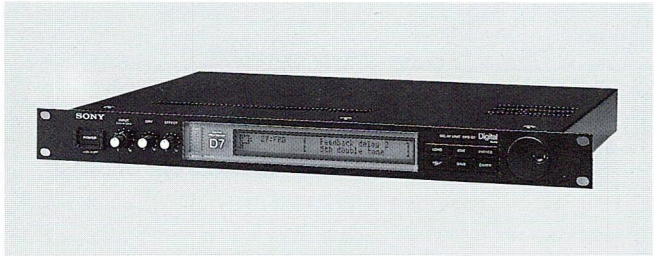
Specifications

Power requirement:	AC 100-120/200-240V, 50/60Hz
Power consumption:	130W
Dimensions:	424(W) x 178(H) x 475(D)mm
Weight:	26kg with four DABK-4001 and four DABK-4002 boards

SUPPORT PRODUCTS

Digital Delay

DPS-D7



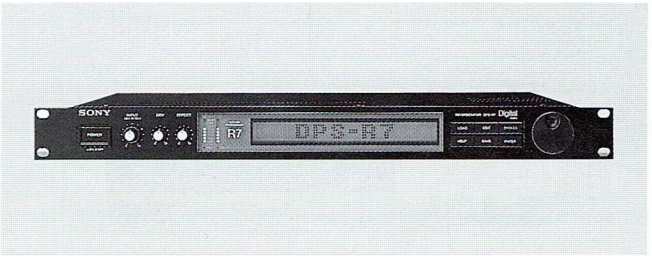
- 32-bit DSP with Sony VLSI technology
- 18-bit oversampling A/D and 1-bit pulse D/A converters
- 100 Preset and 256 User Memories
- 11 algorithms for versatile reverberation effects
  - Phase shifter
  - Flanger
  - Exciter
  - Gate
  - Hall reverb
  - Room reverb
  - Plate reverb
  - Gated reverb
  - Early reflection
  - Delay 1
  - Delay 2
- Help function for easy operation
- Access to all parameters for editing
- Auto pan facility
- Mono or stereo effect output
- 3-band stereo equalizer
- Full MIDI control
- Dedicated remote control port
- Memory back-up for parameters

Specifications

Quantisation:	18-bit linear
Sampling frequency:	40kHz
Analogue Inputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Analogue Outputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Frequency response:	10Hz to 18kHz +0/−1dB
Signal-to-noise ratio:	>90dB
Dynamic range:	>90dB
Total Harmonic Distortion:	<0.004%
Power requirements:	AC 220-240V 50/60Hz
Power consumption:	28W
Dimensions:	482(W) x 44(H) x 320(D)mm
Weight:	4.8kg

Digital Reverberator

DPS-R7



- 32-bit DSP with Sony VLSI technology
- 18-bit oversampling A/D and 1-bit pulse D/A converters
- 100 Preset and 256 User Memories
- 7 algorithms for versatile delay effects
  - Stereo delay
  - Feedback delay
  - Double delay
  - Tap delay
  - Long tap delay
  - Panpot delay
  - Multiple delay
- Help function for easy operation
- Access to all parameters for editing
- Auto Pan facility
- Mono or stereo effect output
- 3-band stereo equalizer
- Full MIDI control
- Dedicated remote control port
- Memory back-up for all parameters

Specifications

Quantisation:	18-bit linear
Sampling frequency:	48kHz
Analogue Inputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Analogue Outputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Frequency response:	10Hz to 22kHz +0/−1dB
Signal-to-noise ratio:	>94dB
Dynamic range:	>94dB
Total Harmonic Distortion:	<0.0035%
Power requirements:	AC 220-240V 50/60Hz
Power consumption:	28W
Dimensions:	482(W) x 44(H) x 320(D)mm
Weight:	4.8kg

SUPPORT PRODUCTS

Digital Modulator Unit

DPS-M7

- 32-bit DSP with Sony VLSI technology
- 18-bit oversampling A/D and 1-bit pulse D/A converters
- 100 Preset and 256 User Memories
- 22 algorithms for versatile modulation effects
  - Gate
  - Compressor
  - Stereo chorus
  - Deca chorus
  - Multi chorus
  - Band chorus
  - Pitch shifter
  - Spiral pitch shifter
  - Band pitch shifter
  - Pitch shift modulation
  - Reverse shift
  - Stereo ensemble
  - Multi phaser
  - Multi flanger
  - Modulation delay
  - Spiral modulation
  - Haas panner
  - Doppler
  - Vibrato
  - Tremolo
  - Ring modulator
  - Rotary speaker
- Help function for easy operation
- Access to all parameters for editing
- Auto pan facility
- Mono or stereo effect output
- 3-band stereo equalizer
- Full MIDI control
- Dedicated remote control port
- Memory back-up for all parameters

Specifications

Quantisation:	18-bit linear
Sampling frequency:	48kHz
Analogue Inputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Analogue Outputs:	2 channels, balanced XLR (+4dBu) unbalanced ¼-inch jack (−10dBu)
Frequency response:	10Hz to 22kHz +0/−1dB
Signal-to-noise ratio:	>94dB
Dynamic range:	>94dB
Total Harmonic Distortion:	<0.0035%
Power requirements:	AC 220-240V 50/60Hz
Power consumption:	28W
Dimensions:	482(W) x 44(H) x 320(D)mm
Weight:	4.8kg

OPTIONAL ACCESSORIES FOR DPS-D7/R7/M7

Wired Remote Control Unit

RM-DPS7

- Connected via serial remote interface
- Controls up to 15 DPS series effects unit

Specifications

Dimensions:	212(W) x 48(H) x 127(D)mm
Weight:	850g

Remote Control Cable

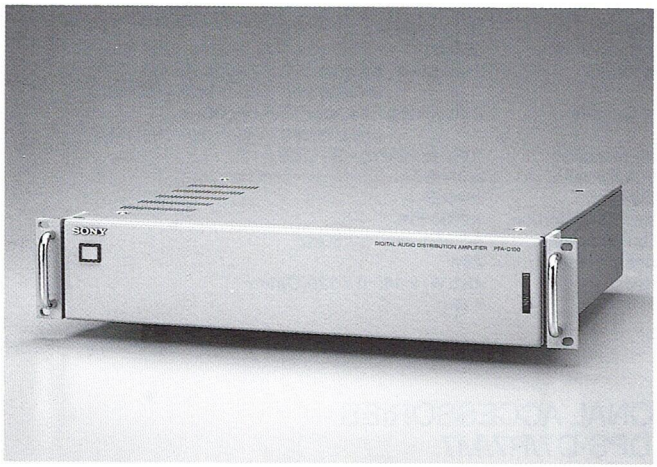
RK-R005/R050/R100

- Connects RM-DPS7 to DPS series effects units
- Cable lengths:
  - 0.5m RK-R005
  - 5m RK-R050
  - 10m RK-R100

SUPPORT PRODUCTS

Digital Audio Distribution Amplifier

PFA-D100



- Conforms to AES/EBU format
- Four distribution blocks, each with one stereo input to six stereo outputs
- Switching allows distribution blocks to be progressively linked, giving configurations ranging from four separate inputs, each with six outputs, to a single input feeding 24 outputs
- 48kHz sampling frequency
- Output signals can be locked to any input signal, or to either a PAL or NTSC video reference signal
- Input signals can be re-clocked to reduce jitter
- Optional back-up power supply and dual AC power inputs for reliable operation
- 2U high

Included accessories
AC power cables
75 ohms termination
Rack-mounted adaptor
Operation and maintenance manual

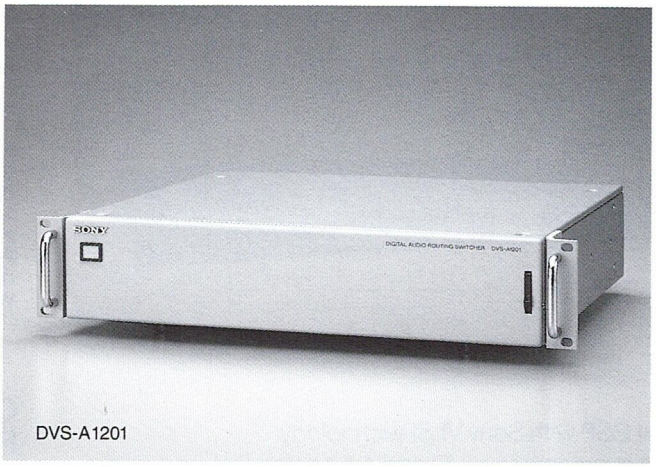
Optional accessories
BKPF-A100 back-up power supply
RMM-30 Slide Rail

Specifications

Power requirements:	AC100-120/220-240V, 50/60Hz
Power consumption:	15W
Dimensions:	424(W) x 88(H) x 350(D)mm
Weight:	7kg

Digital Audio Routing Switchers

DVS-A1201/A3232



DVS-A1201

- DVS-A1201: 12 stereo inputs x one stereo output
  – two units can be interconnected to provide four-channel switching for DVTRs
- DVS-A3232: 32 stereo inputs x 32 stereo outputs
  – can be configured as a 16 x 16, four-channel matrix for use with DVTRs
  – optional connection boards allow cascading to form matrices up to 256 x 256
  – control system fully compatible with Sony S-Bus control system
- Conforms to AES/EBU 48kHz sampling frequency format. Word clock can be synchronised to AES/EBU sync signal or either a PAL or NTSC video reference signal
- Phase synchronised switching occurs between channel status blocks to eliminate switching noise
- High reliability
  – DVS-A1201, 24-hour memory of cross-point selection
  – DVS-A3232, optional back-up power supply and microprocessor control points
- Compact size
  – DVS-A1201 2U high
  – DVS-A3232 7U high

DVS-A3232 optional accessories

BKDS-A3222	cascade set
BKDS-A3290	back-up control board
BKDS-A3291	back-up power supply

Specifications

	DVS-A1201	DVS-A3232
Power requirements:	AC100-120/220-240V, 50/60Hz	AC100-120/220-240V, 50/60Hz
Power consumption:	18W	50W
Dimensions:	424(W) x 88(H) x 350(D)mm	424(W) x 310(H) x 450(D)mm
Weight:	7kg	20kg

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CD MASTERING SYSTEM

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CD MASTERING SYSTEM

Digital Audio Processor

PCM-1630

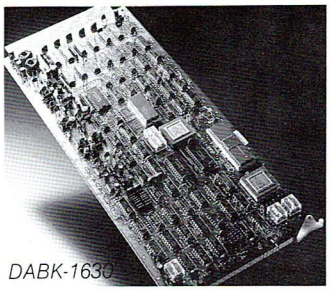
- 2-channel digital audio processor with 16-bit linear quantisation
- Switchable 44.1kHz and 44.056kHz sampling frequencies
- RAR (read after read) for improved reproduction reliability, using optional DABK-1630 board and DMR-4000 recorder
- Fully compatible with PCM-1610
- Wide 20-20,000Hz frequency response
- Dimensions: 424(W) x 200(H) x 530(D)mm (16¾ x 7⅞ x 20⅞")
- Weight: 26kg (57lb 5oz)

Supplied accessories
BNC to BNC cables (x2)
8-pin to 8-pin cable (x1)
Extension board (x1)
Rack mount adaptors (x2)
AC power cord (x1)

RAR Board

DABK-1630

Enables RAR (read after read), dub RAW (read after write) and edit RAW when used in PCM-1630 combined with DMR-4000.



DABK-1630

Digital I/O Boards

DABK-1631

For interfacing PCM-1630 with AES/EBU standard digital equipment.

CD MASTERING SYSTEM

Digital Master Recorder

DMR-2000

- Compact recorder designed specially for digital audio
- Time code recording in three modes

Digital Master Recorder

DMR-4000

- Additional confidence heads for simultaneous monitoring of the signal being recorded (RAW – read after write)
- Two composite digital outputs (MAIN/SUB) for connection to PCM-1630 with DABK-1630 for reliable RAR (read after read) operation that minimises the effect of code errors on the reproduced sound

SPECIFICATIONS

	DMR-2000	DMR-4000
Read after Read	—	○ (w/PCM-1630 & DABK-1630)
Read after Write	—	○ (w/PCM-1630 & DABK-1630)
Head Cleaner	○	○
Time Code Generation	○	○
RE-GENERATE	○	○
FREE RUN	○	○
REC RUN	○ (AUTO STOP)	○
Interface with DAE-3000	○	○
9-pin Remote Connector	○	○
Fan Motor	—	○
Dimensions	446 × 237 × 518mm	454 × 283 × 550mm
Weight	25kg	37kg
Power Consumption	85W	170W
Power Requirements	AC100～120V or AC220～240V	AC100/120/220/240V (selectable)

CD MASTERING SYSTEM

Digital Tape Analyser

DTA-2000

- Test tapes recorded with PCM-1630 system
- Connects to any printer with Centronics compatible interface for printing out a sequential list of CRC, Average, Hold, Mute and Parity errors as well as the sampling frequency, time code mode (drop frame/ non-drop frame), time code jump and emphasis ON/OFF
- Error status/time code display
- Selectable operation mode – Auto or Manual
- Power requirements: AC100-120/220-240V, 50/60Hz
- 1U high, rack mount adaptors included

Digital Meter Unit

DMU-30

- Usable with PCM-1630 CD mastering system, PCM-3402 2-channel digital audio recorder, and other digital audio equipment with AES/EBU digital outputs
- 32-segment LED metering section with overload indication
- Reference marker for setting the reference level in a range from −10dB to −20dB
- Dimensions: 105(W) x 132(H) x 190(D)mm
- Weight: Approx. 2.5kg

CD MASTERING SYSTEM

Digital Audio Editor

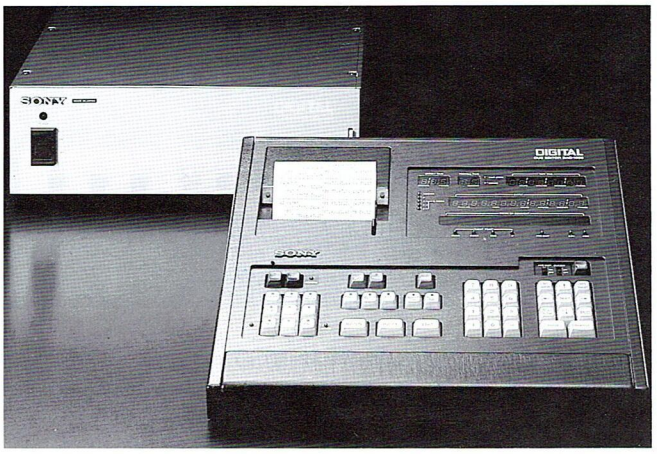
DAE-3000

- Interfaces with up to any four of the following digital audio players in CD Mastering applications:
  – DMR-2000/4000
  – PCM-7030/7050
  – PCM-3402
- Operates with a DMR-2000/4000 recorder
- Edit point search with convenient memory rehearsal
- Variable linear crossfades, up to 4.5 secs
- Separate crossfade times for player and recorder, with offset feature
- High editing resolution of approx. 23μsec
- Easy-to-read, highly informative EL (Electro-Luminescent) display
- Dimensions: Processor 424(W) x 242(H) x 510(D)mm
  Keyboard 424(W) x 329(H) x 344(D)mm
- Weight: Processor Approx. 25kg
  Keyboard Approx. 7kg

Optional accessories
Interface Boards
DABK-3001 Interfaces DAE-3000 with DMR-4000/2000
DABK-3002 Interfaces DAE-3000 with PCM-3402
DABK-3003 Interfaces DAE-3000 with PCM-3324/3324A
DABK-3004 Interfaces DAE-3000 with DAQ-1000
DABK-3005 Interfaces DAE-3000 with PCM-7030/7050 as a player only

Cue Editor

DAQ-1000



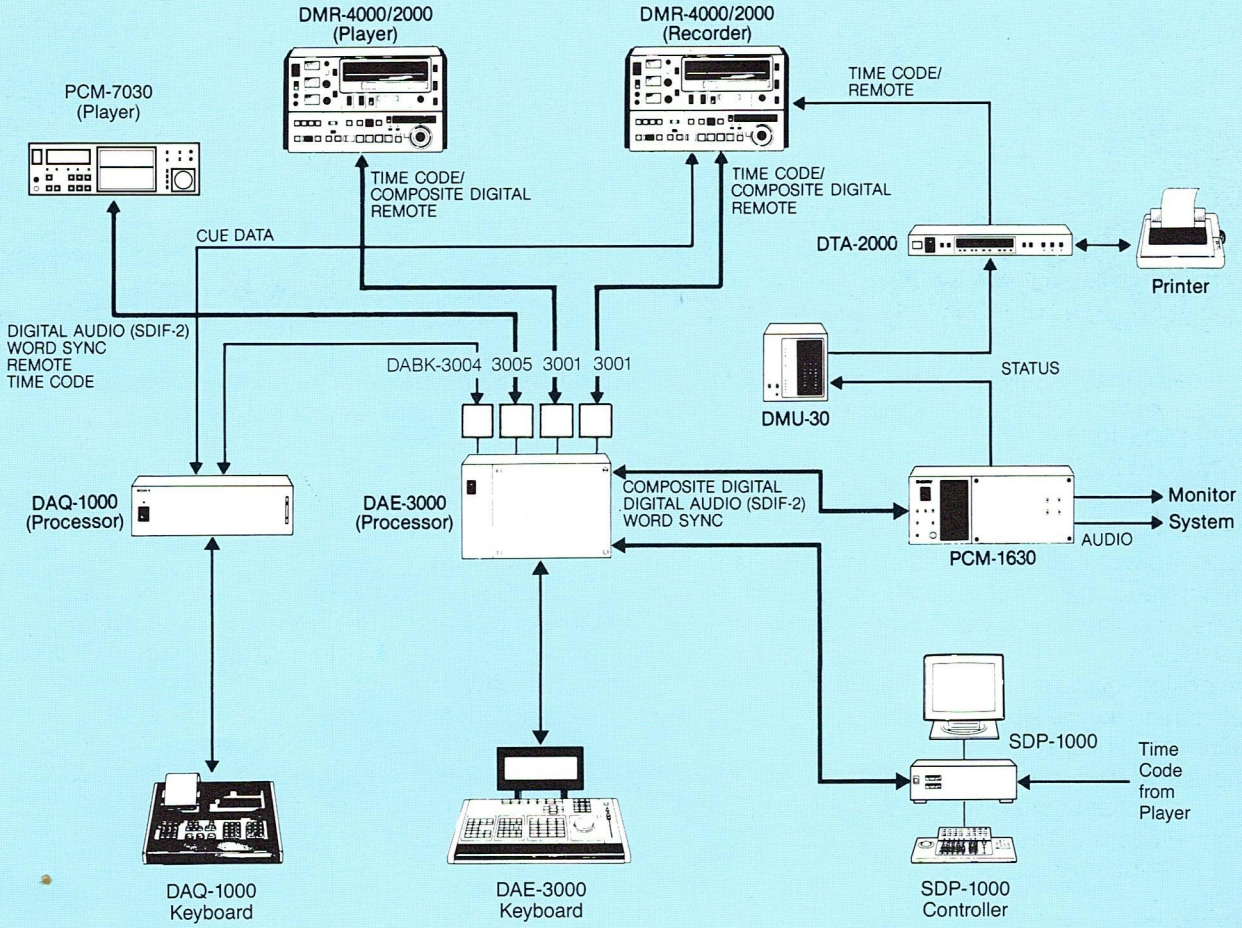
- Cue editor used in compact disc mastering
- Capable of producing subcode data in the form of TOC (Table of Contents) and recording them onto audio track of master tape recorded with PCM-1630 system
- Memory function to store subcode information, with selectable DIRECT, EDITOR TRANSFER and EDIT input modes
- Built-in printer for making hard copies of data
- With optional DABK-1000 PQ generator added, subcode data can be recorded on P and Q channels of compact discs
- Power requirements: AC85-276V, 50/60Hz
- Dimensions: Processor 424(W) x 141(H) x 491(D)mm
  Keyboard 424(W) x 100(H) x 380(D)mm
- Weight: Processor 14.5kg
  Keyboard 8.5kg

Optional accessories
DABK-1000 PQ Generator Unit
PE-1000 Printing Paper Roll

CD MASTERING SYSTEM

SYSTEM APPLICATION

CD Premastering/Mastering System



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COMPACT DISC SYSTEMS

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Professional Compact Disc Player

CDP-2700

- Affordable, professional Compact Disc player
- Balanced XLR analogue outputs
- Digital output (AES/EBU and IEC-958 Type II, unbalanced)
- Start of modulation auto-cueing
- Fader start
- Digital fader function
- 19-inch rack mountable

Supplied accessories
19-inch rack mount kit
AC power cable

Specifications

Number of channels:	2
Readout system:	Non-contact optical system using semiconductor laser pick-up
Error correction:	Sony super strategy Cross interleave Reed Solomon Code
D/A conversion:	8 fs 2DAC 18-bit DF (45-bit)
Frequency response:	20Hz to 20kHz ± 0.5dB
Harmonic distortion:	Less than 0.04%
Wow and Flutter:	Below measurable limit
Signal to noise ratio:	More than 110dB
Crosstalk:	100dB
Variable speed range:	± 12.7% (0.1% steps)
Analogue Outputs:	
BALANCED	0dBu (+15dBu max.) XLR-3-32 type (x2)
UNBALANCED	+8dBu Phone (x2)
MONITOR	+8dBu max.
HEADPHONE	28mW at 32 ohms, stereo phone
Digital outputs:	AES/EBU: XLR-3-32 type (x2) IEC-958 unbalanced: Phono (x2)
Power requirements:	AC 220 to 240V, 50/60Hz
Power consumption:	Approx. 20W
Dimensions:	Approx. 430(W) x 125(H) x 375(D)mm (17 x 5 x 14⅞")
Weight:	Approx. 10kg (22lb 1oz)

COMPACT DISC SYSTEMS

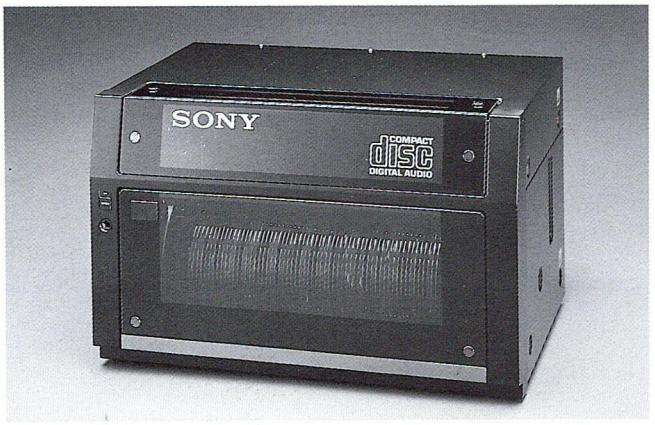
Professional Compact Disc Player System

CDP-3000/CDS-3000

- Separate player and control unit – the player is 19″ rack mountable; the control unit can remote-control 2 players
- 10-key direct access and 2-speed bi-directional search – access time of within 2 seconds and precision of 1 frame (13.3 milliseconds)
- Programmed play of up to 8 selections in any desired order
- Balanced line outputs from XLR-3-32-type connectors
- 9-pin remote connector for remote start/stop
- Dimensions:
  Player 213(W) x 96(H) x 476(D)mm (8.4 x 3.8 x 18.7″)
  Control Unit 334(W) x 101(H) x 233(D)mm
- Weight:
  Player 8kg (17lb 10oz)
  Control Unit 3.3kg (7lb 4oz)

Auto Disc Loader/Player

CDK-006

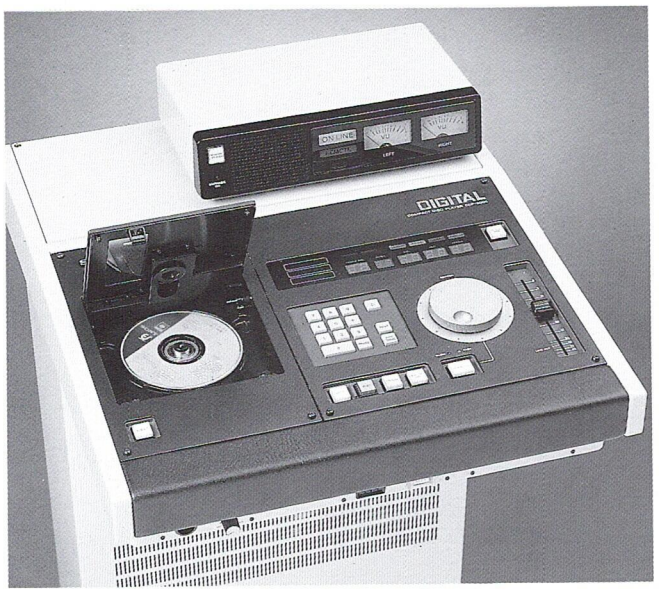


- Holds up to 60 CDs
- Suitable for many types of automated system
- TTL level interface to customer's microprocessor-based control system
- Dimensions: 500(W) x 318(H) x 420D(mm)
  (19.7 x 12.5 x 16.5″)
- Weight: 21kg (46lb) without discs

COMPACT DISC SYSTEMS

Professional Compact Disc Player

CDP-5000

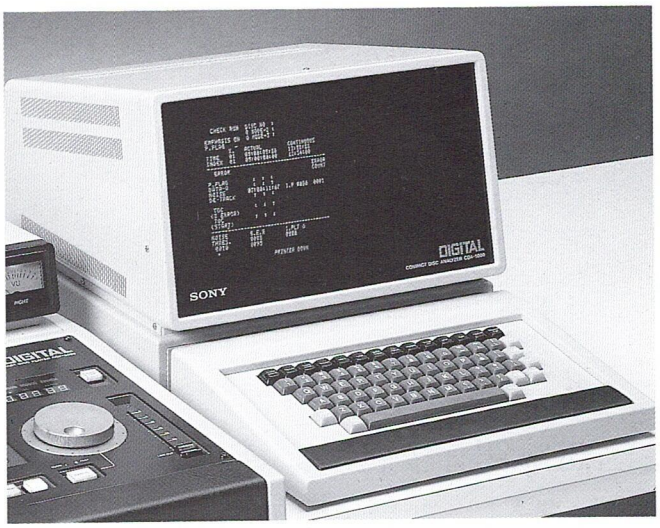


- Reference compact disc playback machine designed specially for use in broadcasting stations
- CLV (Constant Linear Velocity) servo-controlled mobile disc table
- 10-key direct access and 2-speed manual search – access time of within 2 seconds and precision of 1 frame (13.3 milliseconds)
- Balanced line outputs from XLR-3-32-type connectors
- Power requirements: AC120V, 60Hz or AC220/240V, 50/60Hz
- Dimensions: 500(W) x 865(H) x 565(D)mm (19.7 x 34.1 x 22.2″)
- Weight: 52kg (115lb)

Supplied accessory
AC power cord

Compact Disc Analyser

CDA-5000



- Desk-top analyser to be combined with CDP-5000 for quality control in compact disc manufacturing
- 9″ CRT capable of displaying readouts of disc's data including TOC (Table of Contents) as well as errors in sub-code data
- Selectable error check modes – DEFAULT mode for all-out error examination, CHECK SELECT mode for checking selected error items, and NOISE ANALYSIS mode for displaying only noise and de-track errors
- Printing of TOC data and time-based list of detected errors by adding optional printer
- Power requirements: AC120V, 60Hz or AC220/240V, 50/60Hz
- Dimensions:
  Analyser 377(W) x 284(H) x 335(D)mm (14.8 x 11.2 x 13.2″)
  Keyboard 350(W) x 64(H) x 233(D)mm (13.8 x 2.6 x 9.2″)
- Weight:
  Analyser: 13.5kg (29lb 13oz)
  Keyboard: 2.3kg (5lb 1oz)

Supplied accessories
IB unit cable (64-pin)
IF unit cable (36-pin)
Printer cable (36-pin)

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